MAR 8 - 193

The OIL AND GAS JOURNAL

5¢

40

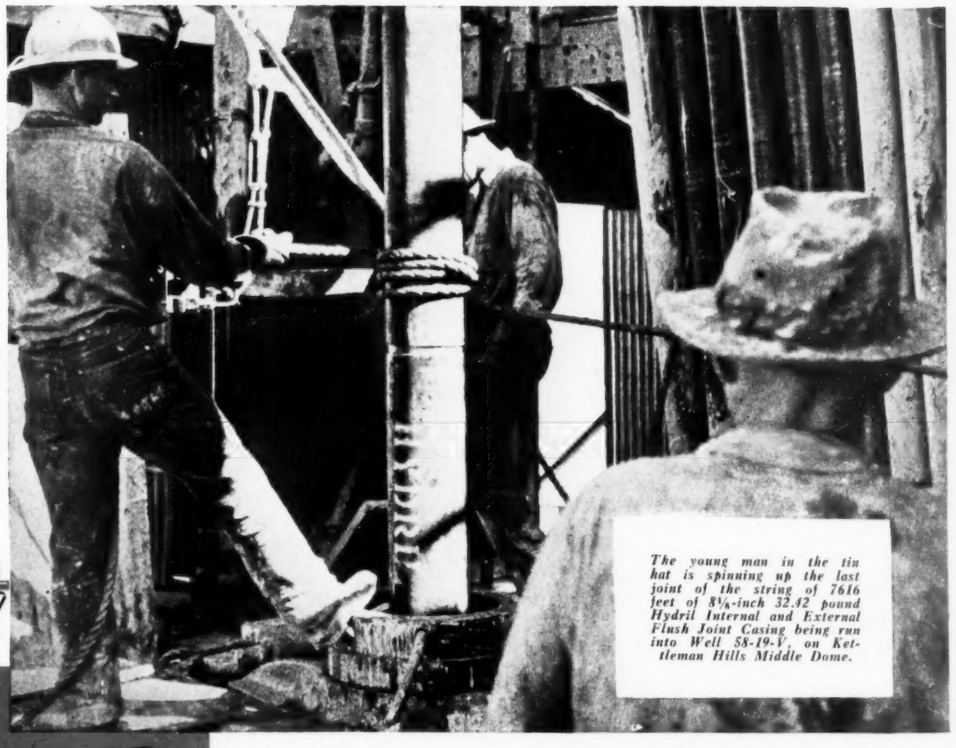
PRODUCING

REFINING

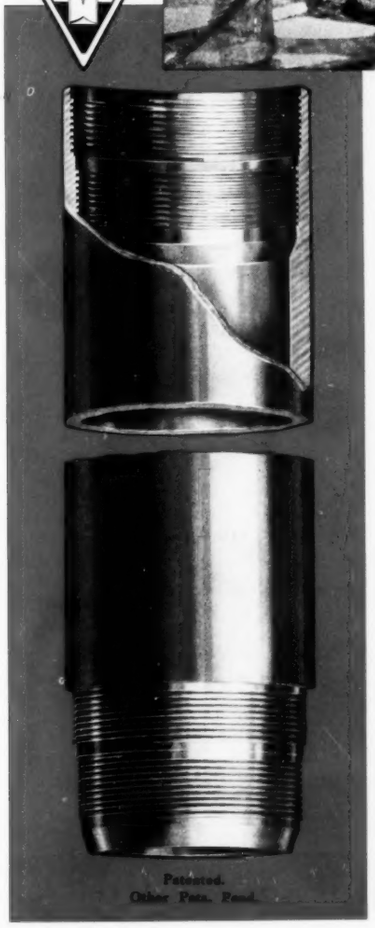
NATURAL GASOLINE

PIPELINE

MARKETING



The young man in the tin hat is spinning up the last joint of the string of 7616 feet of 8⅛-inch 32.42 pound Hydril Internal and External Flush Joint Casing being run into Well 58-19-V, on Kettleman Hills Middle Dome.



HYDRIL

INTERNAL AND EXTERNAL FLUSH JOINT CASING

Running inside of 5625 feet of 10¾-inch casing and in 1991 feet of 9⅝-inch open hole to bottom, this string of Hydril Casing was completely run in exactly five hours. Well No. 58-19-V was drilled for the Kettleman Hills Middle Dome Association with the Hydril Rotary, Six-Speed Draw Works and Three Cylinder Vertical Steam Engine. The pipe on the rack is 5-inch Hydril External Flush Joint Drill Pipe.

See the HYDRIL Section 1935 COMPOSITE CATALOG

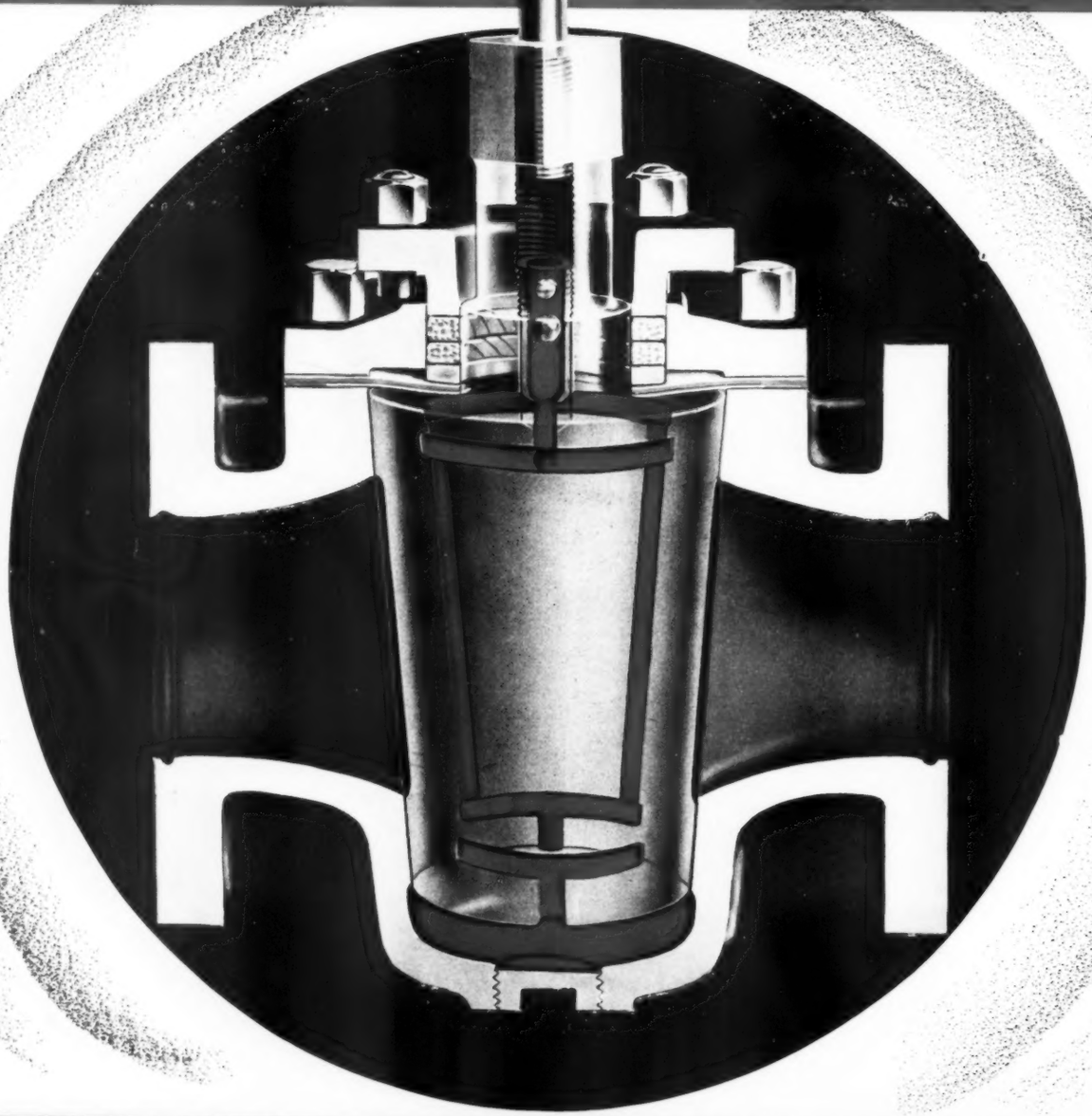
HYDRIL COMPANY
714 West Tenth St., Los Angeles

DOHENY STONE DRILL CO.
of Texas—4300 Calhoun Road, Houston

Cable Address—HYDRIL

The

LOWEST COST VALVES WHEN YOU THINK IN TERMS OF SERVICE



NORDSTROM *Lubricated Plug* **VALVES**

with patented Sentalport lubrication

MERCO NORDSTROM VALVE COMPANY *A Subsidiary of* PITTSBURGH EQUITABLE METER CO

Sales Offices: Pittsburgh, Penna. Branch Offices: New York City, Philadelphia, Columbus, Chicago, Kansas City, Tulsa, Houston, Memphis, Los Angeles

THE OIL AND GAS JOURNAL

Volume 33
Number 42

March 7, 1935

SUBSCRIPTION RATES: Domestic, 1 year, $6; 6 months, $3. Canadian and foreign, 1 year, $7; 6 months, $3.50. All subscriptions payable in advance. When extra copies of special issues are available they are reserved for subscribers' needs and may be bought by subscribers at 50 cents each

SPECIAL ARTICLES

Summary of Situation ---- 7
By ANDREW M. ROWLEY
The Bulletin Board ---- 8
Waste (Cartoon) ---- 9
Federal Tender Board in Action ---- 10
By HUGH D. MALLON
Senate Oil Investigation ---- 10
By HUGH D. MALLON
East Texas Marketing Association ---- 10
Champlin to Lay 250-Mile Gasoline Line 11
By W. T. ZIEGENHAIN
New 88-Mile Line in California ---- 11
By L. P. STOCKMAN
Barton Arch Major Oil Province ---- 12
By E. G. WOODRUFF
Oil Field Brine Disposal ---- 15
By LUDWIG SCHMIDT, H. M. THORNE and C. J. WILHELM
Developments in Gas Engines ---- 17
By A. K. HEGEMAN
Tightening in East Texas ---- 18
By L. E. BREDBERG
Stanolind Buys Yount Lee ---- 20
By NEIL WILLIAMS
Administrator's Report on Stocks ---- 20
Texas Aroused (Editorial) ---- 22
Vigorous Protests (Editorial) ---- 22
Divergent Policies (Editorial) ---- 22
News From Foreign Lands ---- 24
Gov. Allred Protests Thomas Bill ---- 32
Naphthenes Vary Pour Point ---- 33
By B. H. MOERBEEK and A. C. VAN BEEST
Emulsified Road Oils ---- 34
By DR. F. H. GARNER
More Efficient Drilling in California ---- 36
By L. P. STOCKMAN
New Type Dynamometer ---- 38
By EMERY KEMLER
Deeper Drilling on Gulf Coast ---- 44
By NEIL WILLIAMS
Nomographic Chart Simplifies Calculation ---- 46
By H. V. BECK
Oil Exchange Opens ---- 49
By C. O. WILLSON
Field Problems From Readers ---- 87
Edited by T. F. SMILEY

FIELD OPERATIONS

Late Fields ---- 20
East Texas ---- 54
By L. E. BREDBERG
Southwest Texas ---- 56
West and North Texas ---- 57
By L. E. BREDBERG
Gulf Coast ---- 63-65
By F. L. SINGLETON
N. Louisiana-Arkansas, Mississippi ---- 68
By J. R. CRUMPTON
Eastern Fields ---- 69
By STAFF CORRESPONDENT
Central West ---- 69
By GEORGE A. WHITNEY
Michigan ---- 70
By PAUL A. ELLIOTT
Kansas ---- 71
By JAMES McINTYRE
Canada ---- 72
By VICTOR LAURISTON
Oklahoma ---- 73
By JAMES McINTYRE
California ---- 76
By L. P. STOCKMAN
Rocky Mountain Area ---- 80
By TOLBERT R. INGRAM

REFINING AND MARKETING

Group 3 Market ---- 26
By T. F. SMILEY
New York Market ---- 27
By C. O. WILLSON
A.P.I. Refinery Report ---- 27
Refinery and Crude Oil Prices ---- 28-29
Tank Wagon Markets ---- 30
News for Sales Department ---- 31
News for Petroleum Refiners ---- 52
Natural Gasoline Manufacture ---- 53
Technical Questions Answered ---- 83
By C. K. FRANCIS, Ph.D.
Chicago Market ---- 89

GENERAL DEPARTMENTS

Do You Remember? ---- 84
Personal Paragraphs ---- 84-85
Natural Gas Developments ---- 86
Record of Oil Securities ---- 88
New Equipment ---- 93
Classified Advertising ---- 94-95
Index to Advertisers ---- 96

Refinery Section Starts on Page 26

OIL MAN'S CALENDAR

March

21-23—Wichita, Kans., American Association of Petroleum Geologists, annual meeting.

27-28—Kansas City, Mo., Missouri Oil Men's Association, President Hotel.

29—Hutchinson, Kans., Kansas Chapter, A.P.I.

April

4—Los Angeles, California Natural Gasoline Association.

4-5—Excelsior Springs, Mo., Western Petroleum Refiners Association, annual meeting.

8-13—Houston, Tex., Oil Equipment and Engineering Exposition.

10-11—Amarillo, Tex., American Petroleum Institute Mid-Continent Production Division, spring meeting, Herring Hotel.

10-11—Indianapolis, Ind., Indiana Independent Petroleum Association, spring convention, Hotel Severin.

11-13—Dallas, Tex., Petroleum Industry Electrical Association, Baker Hotel.

18-19—Cleveland, Ohio, National Petroleum Association, semi-annual meeting, Hotel Cleveland.

25-26—San Antonio, Tex., American Petroleum Institute Southwestern Production Division, Plaza Hotel, spring meeting.

May

1-3—Tulsa, Natural Gasoline Association of America, Hotel Tulsa.

6-9—Memphis, Tenn., Natural Gas Department, A.G.A., Peabody Hotel.

8-11—Tulsa, Oil and Gas Power Division of A.S.M.E., Mayo Hotel.

14-16—Tulsa, American Petroleum Institute, fifth mid-year meeting, Mayo Hotel.

June

20-21—State College, Pa., Pennsylvania Grade Crude Oil Association, annual meeting.

September

25-27—Atlantic City, N. J., National Petroleum Association, annual meeting, Hotel Traymore.

November

4-5—Dallas, Tex., I.P.A.A., annual convention.

11-14—Los Angeles, American Petroleum Institute, sixteenth annual meeting, Biltmore Hotel.

Branch Editorial Offices

WASHINGTON	CHICAGO	DENVER	FORT WORTH	HOUSTON	LOS ANGELES	PITTSBURGH
Hugh D. Mallon	616 S. Michigan Ave.	Tolbert R. Ingram	L. E. Bredberg	Neil Williams	L. P. Stockman	P. O. Box 1344
808 Investment Bldg.		State Office Bldg.	Petroleum Bldg.	809-10 Sterling Bldg.	Union Oil Bldg.	

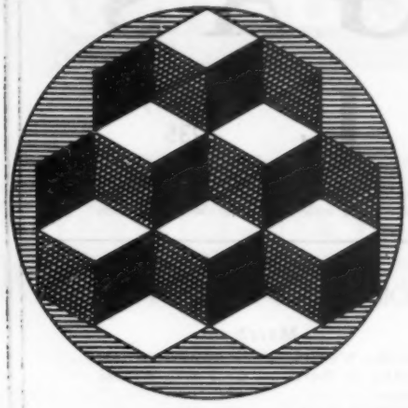
MUSKEGON	LOUISIANA	TOLEDO	NEW YORK	OIL CITY	CHATHAM, ONT.
Paul A. Elliott	J. R. Crumpton	George A. Whitney	C. O. Willson	R. C. Conine	Victor Lauriston
Chronicle Bldg.	Minden	Box 98, Main P. O.	415 Lexington Ave.	Oil City Derrick	35 Stanley Ave.

Branch Advertising Offices

NEW YORK	CLEVELAND	CHICAGO	LOS ANGELES	HOUSTON
C. L. Cain	Howard Markt	C. R. Farmer	J. H. Tinkham	Paul T. Putnam
415 Lexington Ave.	802 Leader Bldg.	616 S. Michigan Ave.	2941 Raymond Ave.	809-10 Sterling Bldg.

Copyright, 1935, by The Petroleum Publishing Co.

Speaking of optical illusions . . .



How many blocks are there? If you depend on bailer samples to guide you in drilling an oil well you may often be misled by "optical illusions."

The BAKER CABLE TOOL CORE BARREL

shows you the actual formation!

Uncontaminated, practically perfect cores give the geologist and engineer a solid foundation of positive knowledge for the exercise of their skill and judgment.

Any competent driller can secure good, informative cores every time with a Baker Cable Tool Core Barrel. The technique is easy—the rules few—the results certain.

The cost of coring with a Baker Cable Tool Core Barrel is small compared to the value of the reliable information the cores give you.

WHY IT PAYS TO CORE

By coring you can tell positively whether sands are oil bearing, water bearing or dry, and you eliminate the danger of passing up a zone that might be made productive by "shooting" or similar means. You can find any breaks which may separate oil from water-bearing formations. You can choose the right place to land casing and the best location for water shutoffs. You can approximate the dip of the formations; test their porosity, and study their lithographic and paleographic character.

Drilling Is Not Slowed Up

In most formations drillers make as much hole, per run, with the Baker Cable Tool Core Barrel as they do with regular bits.

Recovery 80% Or More

Core recoveries with the Baker Cable Tool Core Barrel are always high—100 per cent is not unusual—85 per cent is the average under all conditions.

Cores like these give you a true knowledge of formations.

For more detailed information see our section in the new 1935 Composite Catalog, or write today for the Baker Catalog Insert describing the Cable Tool Core Barrel and giving prices.

BAKER CABLE TOOL CORE BARREL

BAKER OIL TOOLS, INC.

POST OFFICE BOX 609, HUNTINGTON PARK CALIFORNIA

COALINGA • TAFT • HOUSTON • OKLAHOMA CITY • TULSA • NEW YORK

Stronger Crude and Gasoline Markets Reflect Improved Conditions and Promising Outlook

By ANDREW M. ROWLEY

CRUDE oil and gasoline markets are much stronger, reflecting improved conditions in both branches of the petroleum industry. There is a larger jobber demand in the gasoline market than has been experienced in a long time and prices are higher. Several factors are involved in the better conditions and more promising outlook. These include tightening of enforcement of rules and regulations covering production and shipments in East Texas as a result of activities of the attorney general's department and other authorities in Texas; the resumption of operations of the Federal Tender Board in East Texas; work of the East Texas marketing organization which is handling gasoline manufactured by refiners operating legally; and the belief a nation wide gasoline buying movement will again be inaugurated as soon as the industry is assured illegal operations in East Texas have been eliminated.

Field operations again emphasized the uncertainty of "promising showings" and the fact considerable new development work is necessary to build up new crude oil reserves to offset the increasing consumer requirements. It had been accepted almost as a fact that the Humble had opened a new field which might assume major proportions in its test near Anahuac in Chambers County on the Texas Gulf Coast but when the well was tested early this week it flowed only six barrels an hour and now is being killed to deepen in the hope of increasing production. Operators in the Fitts Pool in Oklahoma, the most prolific new development in the country and the largest producing field discovered in the past three years, are disturbed by an appreciable showing of salt water in one of the producing wells.

Kansas continues as the most active area in the country with large areas giving good promise of being productive. Each week brings new discoveries or extensions to proven areas while geological surveys indicate still further sections covering wide areas have all the indications of being productive of oil. Good producers are being completed weekly in Reno, Rice and Russell Counties.

Operators in Southwest Texas are interested in the completion of a 25-barrel well in the shallow Cole Sand in the West Tuleta Pool. This well failed to get production in the Pettus Sand and was plugged back to the Cole. The Union Oil Co. of California completed what may be a 10,000-barrel well in the Playa del Rey Field, the largest producer since extension work there got under way late last year. Demand for Michigan crude continues at a higher level than the Federal allowable.

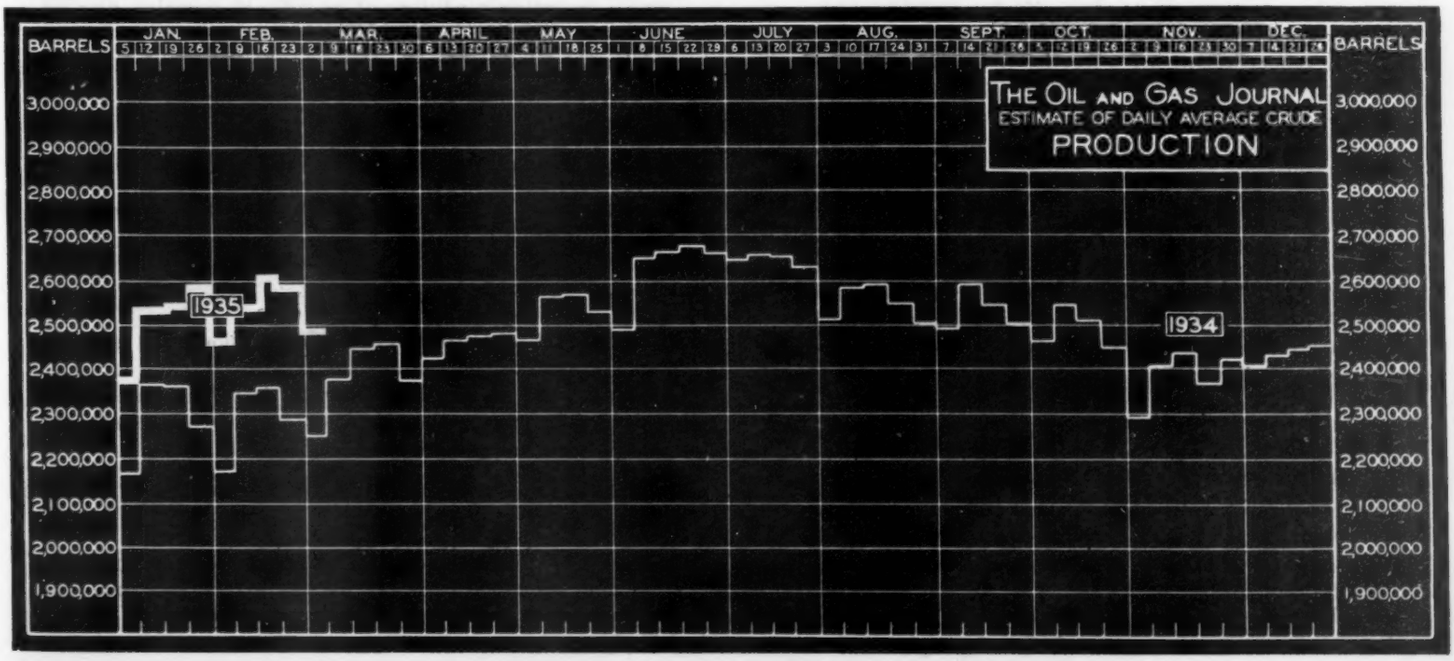
Passage by the legislature of Oklahoma of the interstate compact adopted recently at Dallas indicates this compact will be ready for consent legislation by Congress within the very near future.

Crude Oil Production in the United States

Estimated daily average production for the week ending March 2, a comparison with previous week and the Federal allowables follow:

		Federal allowable	
Oklahoma—	March 2	March	Feb. 23
Oklahoma City	127,750	.....	159,125
Seminole-St. Louis	86,300	.....	95,275
Remainder of State	243,775	.....	244,625
Total Oklahoma	457,825	491,000	499,025
East Texas—			
Lathrop	160,763	.....	168,654
Kilgore	152,813	.....	162,310
Joiner	150,529	.....	155,827
Total East Texas	464,105	.....	486,791
West Texas	143,885	.....	143,512
North Central Texas	89,729	.....	89,551
Texas Panhandle	62,873	.....	62,807
East Central Texas	51,247	.....	51,559
Gulf Coast—Texas	177,256	.....	174,519
Southwest Texas	59,870	.....	59,043
Total State of Texas	1,048,965	1,020,100	1,067,782
Kansas	146,380	139,700	146,750
North Louisiana	22,980	.....	22,960
Gulf Coast—Louisiana	94,502	.....	94,334
Total Louisiana	117.482	110,500	117,294
Arkansas	30,070	31,900	30,730
Eastern Fields (except Michigan)	104,000	105,500	102,750
Michigan	33,334	31,600	37,266
Rocky Mountain area	93,220	97,400	94,334
California—			
Santa Fe Springs	35,900	.....	37,300
Long Beach	58,500	.....	66,500
Mountain View	11,500	.....	11,500
Elwood	9,400	.....	10,250
Kettleman Hills	67,800	.....	67,500
Remainder of State	277,100	.....	300,700
Total California	460,200	492,600	493,750
Total United States	2,491,476	2,520,300	2,589,487

Decrease 98,011 Bbls. Daily.



The Bulletin Board

A Gasoline Pipe Line, 250 miles in length of 6-inch pipe, will be constructed by the Champlin Refining Co. from its refinery in Enid, Okla. to Superior, Nebraska, work to start within 10 days or so, according to H. H. Champlin, president of the company. Early expenditure for pipe, right-of-way, two stations contemplated, etc., are estimated at $1,750,000. The line, eventually, may be extended to Sioux City, Iowa.

•

The Oil Exchange inaugurated trading in crude oil and gasoline futures at the Commodity Exchange, Inc., New York, on Tuesday with quotations on crude oil and gasoline for June delivery slightly higher than present market prices. Considerable interest was manifest in operations of the exchange.

•

$50,000,000 Net, with income taxes paid, is the reported price paid by Stanolind Oil & Gas Co. for properties of the Yount Lee Oil Co.

•

West Central Kansas has many sections with good prospects of producing oil and gas according to a geological analysis of the state which shows the Barton Arch area is a major petroliferous province of more than 7,000 square miles. This analysis indicates the extensive development work, steadily increasing, in Kansas should result in considerable production.

•

East Texas Refineries are closing down with total runs to stills in the field showing a decline last week as did crude oil production. Tightening of enforcement regulations by the state authorities and the starting of operations by the Federal Tender Board are expected to further curtail this week activities of refineries and "hot" oil producers. Refinery runs dropped 7,000 bbls. daily last week and crude oil production 22,700 bbls. daily, despite numerous additional wells completed.

•

Pour Point Determinations on fuel oils containing asphaltenes are difficult to check and a new method of laboratory test procedure has been devised to overcome some of the objections.

•

Taxing Petroleum continues to be the theme song in many legislative halls. Oklahoma is still wrought up over a proposed gross production tax of 8 per cent on crude oil while Gov. Allred of Texas, read a message to the legislature urging a tax of 1 cent per 1,000 feet on natural gas; a graduated chain store tax to include gasoline filling stations; and a 1 per cent tax on gross assets of oil and gas pipe lines.

The Thomas Bill, designed to give the Federal government control over certain operations in the petroleum industry, is entirely unnecessary; is opposed by more than 90 per cent of the petroleum industry; and no further Federal oil legislation, except giving consent to the state to enter into an interstate compact, is desirable, according to telegrams sent Texas senators and congressmen by Governor Allred, Attorney General McCraw and Chairman Thompson of the Railroad Commission of Texas.

•

A New Pipe Line, 88 miles long, of 8 and 10-inch welded pipe, will be constructed by the General Petroleum Corp., California subsidiary of the Socony-Vacuum Oil Co., from San Joaquin Valley to its Torrance refinery in the Los Angeles basin.

•

The Petroleum Administration is busy preparing data for submission to the Senate committee which is investigating the operation of the N.R.A. Recent Federal court decisions have been adverse to important phases of the N.R.A.

•

Engines used in natural gasoline plants have been so improved in design during the past five years that purchase by oil companies of used equipment built prior to 1930 cannot be justified from an economical standpoint.

•

New Type Dynamometer has been developed to determine with reasonable degree of accuracy sucker rod loads, information necessary in determining the most desirable operating conditions of an oil well pumping unit or rig front, the selection of proper material and size of sucker rods and the design of pumping unit.

•

Pipe Line Problems relating to friction loss of fluid flow may be solved more easily through a nomographic chart prepared for that purpose.

•

Asphaltic Road Oils of the emulsion type, refinery prepared, require considerably more research work for perfection of their use and one important factor to overcome is the loss of water by evaporation to the point where the emulsion breaks down too quickly.

•

Improved Drilling Practices in California include a new method of cementing off a sand and water in the Santa Barbara Mesa Field and a new design of rotary drill pipe.

Waste

—Drawn exclusively for The Oil and Gas Journal

Federal Tender Board, Senate Oil Investigation Interesting Washington

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 4.—The Federal Tender Board has been re-established at Kilgore, Tex., under the authority by President Roosevelt delegating to the petroleum administration "all of the powers and functions vested in the President" by the Connally bill. At the same time the petroleum administration is preparing for congressional interrogations under a Senate NRA investigation now being started.

Unless all shipments of oil in interstate commerce are accompanied by a tender issued by the Federal Tender Board it is a violation of the law for any common carrier to accept the same, as well as a criminal offense for the owner of the oil to offer it for shipment. Either offense is subject to a fine of not to exceed $2,000 and six months in prison, while, at the discretion of the Government, the oil may be confiscated and used by the federal Government in whatever way is deemed best.

Although the law has been in effect since February 22, the Federal Tender Board was not officially set up until March 2, the President not having designated any agency to carry out the provisions of the bill. Under the executive order, the petroleum administration will administer two provisions of the law relating to the legality of oil offered for interstate shipment, and issue tenders on oil approved as produced in conformity with the state laws, but for any violations of the law the Department of Justice must be called in to prosecute or bring injunctive proceedings.

Regulations covering the procedure of the tender board and showing the facts that must be established to procure tenders for shipment have been issued by the petroleum administration. The regulations and orders, as well as the requisite forms, are practically identical with those previously used by the board before the decision of the Supreme Court which struck down the previous board.

With officials of the State of Texas enforcing the state laws, and the re-establishment of the Federal Tender Board, opinion here is that "hot" oil should be practically stamped out within a very short time. Shipments of untendered products, it is claimed, fell off considerably even before the federal board started to function due to the work of the state forces.

Senate Investigation of Conditions Under Code

Charges of monopolistic practices, discrimination, and oppression of small enterprise under NRA codes and administration have brought on an investigation by the Senate which is necessitating that the petroleum administration prepare its files and the records of its administration of the petroleum code for investigation.

The investigation, the result of two separate resolutions proposed by four senators, will be conducted by the Senate Finance Committee. It is expected to deal with twenty-one specific charges of hardships worked on industries by the operation and administration of codes, and with sweeping charges of monopolistic and oppressive practices which Senator Borah, of Idaho, alleges are resulting from the operation of the National Recovery Act.

The 21 charges raised in the resolution submitted by Senator Nye, of North Dakota allege that small enterprises are oppressed; wage scales are being ignored; code authorities are dominated by elements of industry; using their power to dominate and oppress other elements within an industry; use of their power to centralize industries; sending investigators throughout the country who practice unlawful searches and seizures; suspension of code provisions by administration for the benefit of favored individuals; discrimination in this respect even among non-favored elements in an industry; use of extralegal powers conferred under the code to oppress alleged violators of code provisions; regulation of production costs and indirectly fixing prices thereby; and that protected by code provisions for the confidential nature of information obtained under code provisions, the operations of the code authorities are shrouded in secrecy.

During the discussion of the investigation resolution passed by the Senate, Senator Borah stated he had no desire to encourage two separate and distinct investigations of the same subject, but he requested the Senate Finance Committee to fully investigate the monopolistic practices which he claims have been fostered by the recovery act. At least 167 codes, which the Senator said he had investigated, seem to be "distinctly combinations or conspiracies in restraint of trade," he claimed, or else, "combinations for the/fostering of/monopoly, for the fixing of exorbitant and unjust prices."

The immediate result of this investigation will probably be the revision and amendment of the National Recovery Act to meet objections and shortcomings brought out during the hearings. Some opponents of the recovery legislation are secretly trying to delay action until after June 16, when the act will lapse according to its present terms. The only method by which it could be revived would be by the enactment of an entirely new law.

Anticipating being called into the discussion the petroleum administration is busily preparing data for submission to the committee. No indication as to the nature of the material has been forthcoming, but it is expected to show the complete administrative procedure used by the board in carrying out the oil code, as well as the methods of amendment, revision and modification used by the board in altering the terms of the code.

Decision on NRA May Affect the Oil Industry

Federal District Judge Nields at Wilmington, Del., held in the Weirton Steel Co. decision that the National Recovery Act, under Section 7(a) applied only to interstate commerce. The matter under attack by the federal Government in this case was that the company union plan of representation in effect at the plant of the Weirton company was set up by coercion of company officials.

The court held that the union was a lawful and effective organization of the employes, by which the employes were enabled to bargain collectively through representatives of their own choosing, but aside from this the judge stated that Congress may pass industrial regulatory laws affecting only interstate business, and that the Weirton company was not engaged in interstate business. For that reason, the court held that even though the Government had shown, which the court did not think it had, that coercion and duress was practiced to further the company union, the law was not valid as applied to this case.

Judge Nields stated in handing down the decision that "the suggestion that recurrent hard times suspend constitutional limitations, or cause manufacturing operations to so affect interstate commerce as to subject them to regulation by Congress borders on the fantastic and merits no serious consideration." If such suspension of constitutional limitations takes place it places in the hands of the federal Government regulation over all manufacturing, and from that source to the entire economic life of the nation, the judge continued, but numerous Supreme Court decisions were cited by him to show that suspension of constitutional provisions, or attempts by legislation to do so, had been stricken down by that body.

Almost at the same time that Judge Nields was handing down his decision Federal District Judge Charles I. Dawson was granting a writ preventing the Government from enforcing the bituminous coal code on a group of Kentucky coal operators. He held that Congress lacks power to regulate wages and prices in the industry, and stated further that when the Government unconstitutionally interferes with the right of a citizen to do business in his own way, that interference constitutes an injury to the property rights of the citizen.

Another test of the recovery act, the first which the Supreme Court will have before it, is to be argued before that body next week. It involves the constitutionality of the recovery act, the New York State recovery act, the national retail automobile code, and the power of the federal Government to fix prices in industry. This is the first case which directly places the legislation in issue before the Supreme Court, the oil cases not presenting the legality of the act, but only of one section.

Administration officials are anxiously awaiting the outcome of this case and are hastening appeals of the other two cases to the Supreme Court. Other cases in which the contention of the Government has been denied are also being groomed for appeals to higher courts, and it is doubtful if any legislation extending the recovery act will be promulgated before the Supreme Court has decided the question of the merits of legislation of this type.

The decision of Judge Nields is of great importance to the oil industry, because if upheld by the Supreme Court it will exempt from the jurisdiction of Section 7(a) a considerable portion of the employes in the industry, while the decision of Judge Dawson will relax some of the restrictions which have been built up under the wage provisions of the code by the Petroleum Labor Policy Board.

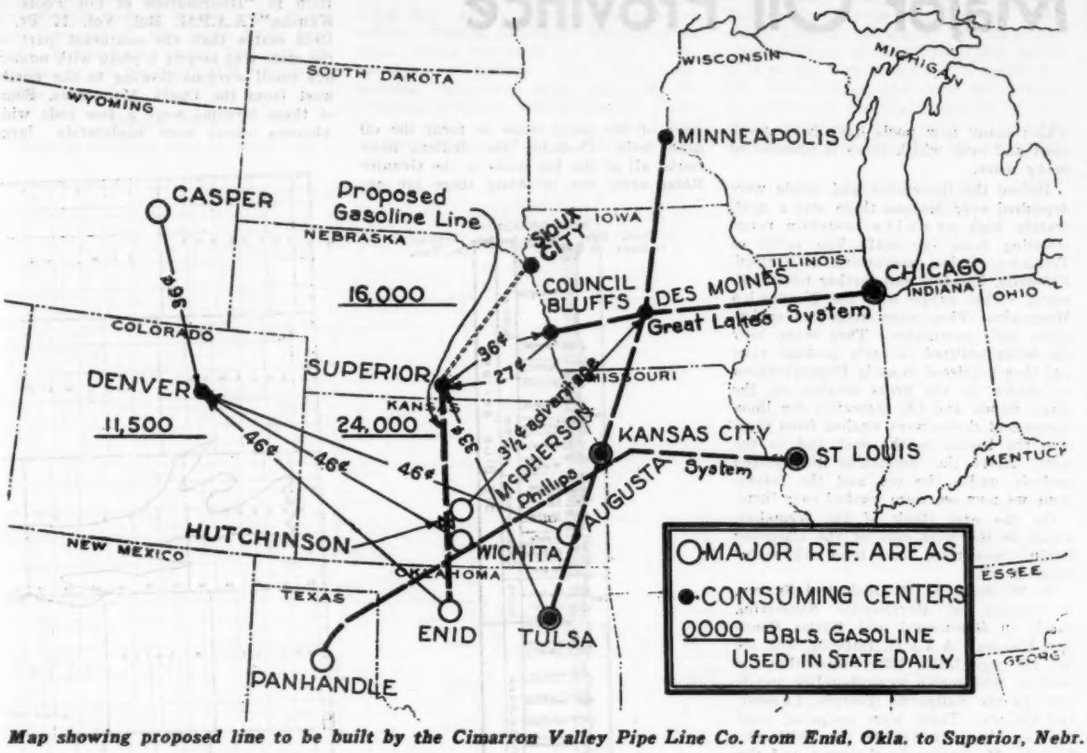
Officers and Directors Chosen by New East Texas Marketing Organization

TYLER, Tex., Mar. 5.—Officers of the new Independent Refiners Marketing Corp., organized by leading East Texas refiners to obtain an outlet for all legal gasoline made in this area without sending it to northern markets, have been chosen as follows: President, Henry B. May, Arrow Refining & Producing Co.; secretary, H. J. Campbell, Gilliland Refining Co.; assistant secretary, R. N. Cline; treasurer, T. O. Potter, Utah Refining Co. The directors include Mr. May, Mr. Campbell and Mr. Potter in addition to the following: L. V. Haberle, Chief Refining Co.; H. S. Robertson, La Pren Refining Co.; M. M. Travis, Southport Refining Co., and W. S. Kostelka, Oil Refineries, Inc.

The only one of the foregoing men who is to be on salary is the assistant secretary, Mr. Cline, who formerly was sales manager for the Tidal Refining Co., Cosden & Co., and more recently for the Arrow Refining Co. He will handle all detail work and keep in touch with all refinery gasoline in the East Texas area. F. W. Fischer is general counsel. The organization opened its office here March 1. Twelve refineries are members.

Some of the refiners now are discussing a plan which would involve establishing a terminal at the Gulf Coast for disposal of surplus fuel oil and refinery charging stock. Some of the refiners have cracking plants and will be in a position to ship a product to the Gulf for export or coastwise movement which will meet bunker oil requirements. This terminal project is wholly separate from the marketing corporation.

Champlin to Lay 250 Mile Gasoline Pipe Line From Enid Into Nebraska



Map showing proposed line to be built by the Cimarron Valley Pipe Line Co. from Enid, Okla. to Superior, Nebr.

By W. T. ZIEGENHAIN

Another major gasoline pipe line, leading from the Mid-Continent refining area into the central western territory will be constructed immediately, according to H. H. Champlin, president of the Champlin Refining Co., of Enid, Okla., and president of the newly organized Cimarron Valley Pipe Line Co., which company will build and operate the line.

Mr. Champlin stated that some engineering details remained to be worked out, but that the company had received a certificate of convenience and necessity from the State of Kansas on February 28 to lay a gasoline pipe line across the State and that plans have been drawn to lay a 6-inch line from the Champlin refinery at Enid to Superior, Neb., passing through Hutchinson, Kans., at which point a rail and truck distribution plant will be erected. He also stated that the company will provide facilities for the probable future extension of the line from Superior, Neb., to a more northerly point, possibly Sioux City, Iowa. Representatives of the company are now in Kansas to complete the purchase of right of way.

To start with, the company will operate the line with but two pump stations, one located at Enid and the other at Hutchinson. The capacity of the line will be increased later through the erection of intermediate stations as the need develops.

It is not known whether other refineries will join with the Champlin Refining Co. in using the facilities offered by the new pipe line company, the only other major refiner in the Enid area being the Eason Oil Co., which operates a 5,000-bbl. plant there. However, it would be an easy matter for refiners in the central Kansas area to join with Champlin in the project and thereby justify the early extension of the line into Iowa and other points. The potential users of the line would probably include the Globe Oil Refining Co. with a 10,000-bbl. plant at McPherson, Kans.; Derby Oil Co. with an 8,000-bbl. plant at Wichita; Barnsdall Refining Co. with a 5,000-bbl. plant also at Wichita, and the Dickey Refining Co. with a 5,000-bbl. refinery at McPherson. The Champlin plant has a rated capacity of 16,000 bbls. of crude daily and is equipped with cracking facilities.

While the new line is not as large a project as either the Great Lakes pipe line system or the Phillips Petroleum Co. system, it will feed a consuming area now untouched by either of them. Also it emphasizes the logic of building gasoline lines from the Mid-Continent to important market centers as soon as a substantial volume of business can be segregated.

Use of the line will be most attractive where the gasoline is to be moved into western Kansas, eastern Colorado and to Nebraska points. To date, rail rates on gasoline moving from Superior, Neb., have been given little attention, so the expanse of the market territory to be served by the new line remains uncertain. It is only reasonable, however, that a series of new special rates be instituted from Superior upon completion of the line.

The new line will tap the territory supplied in part by the Casper, Wyo., refiners also, and an extension of the line northward could very easily tap a large territory now supplied by rail from Casper.

It is likely that rates eastward out of Superior will be altered downward, an interesting example of the type of special rate that might be established being shown in the case of that applying to gasoline moved to Council Bluffs, Iowa, by pipe line, destined for rail delivery at Superior, Neb. A special rate of 27 cents a hundred is now in force. Gasoline moved from Superior to Omaha over the same ground, but in the opposite direction, now takes the fifth class rate of 36 cents a hundred, or 9 cents higher. It seems reasonable that a request will be made for a common rate between these points.

Large Truck Business

Refiners operating in central Kansas have made strong bids for the western Kansas and Nebraska truck business. This prompted the Globe to erect a large truck terminal at McPherson, and Derby has built a line from its plant in Wichita to a truck and rail distributing plant at McPherson.

The Champlin unit to be erected at Hutchinson will supply additional competition within the local trade area, and the new pipe line into Nebraska will attract truck trade that would have otherwise gone from Nebraska to McPherson or Wichita.

To supply that trade which the new line is expected to get, it is understood that initial deliveries will be between 5,000 and 8,000 bbls. of gasoline daily. This volume can be increased as desired up to about 14,000 bbls. daily without additional lines by adding intermediate pump stations. The relatively low rate of deliveries at first may be explained by the fact that at present freight rates do not greatly favor the line except within a small marketing territory. Also, the gasoline consumption within western Kansas, Nebraska and eastern Colorado is not high, amounting to only about 40,000 bbls. daily.

In requesting lower rates from Superior and Hutchinson, Champlin will also need to consider the fact that the Interstate Commerce Commission has already instituted low rates from the Mid-Continent refining area into the Central West through what they refer to as "development" and "missionary" tariffs.

Cost of Project

The early expenditure for pipe, right of way, pump stations and distribution terminals will probably come close to $1,750,000, and Mr. Champlin stated that in excess of $1,000,000 would be spent immediately.

The Continental Supply Co. was the successful bidder in supplying pipe for the project, a contract having gone to it for 250 miles of 6-inch seamless pipe. Shipments will be made from the mills of the Youngstown Sheet & Tube Co., initial deliveries to be made within 10 days. Continental will also supply the engines, pumps, valves and fittings, the type of motive power and pumps remaining indefinite. A survey of the line is in progress to determine accurate elevations and until completed figures are obtained the choice of pumps and power units will be held in abeyance. The flat country through which the pipe line will pass simplifies the engineering job, however. At this time no contract has been let for ditching and preliminary plans have called for 50 per cent of the line to be laid by Champlin labor.

Relatively little new tankage will be needed as the company has idle storage in Kansas that will be moved to Hutchinson and Superior and some tankage and loading facilities at the Enid refinery will be moved to Superior where the bulk of the shipping will originate as soon as the line becomes operative.

General Petroleum Corporation to Build 88 Mile Pipe Line to Torrance

By L. P. STOCKMAN

LOS ANGELES, Calif., Mar. 2.—General Petroleum Corp., California subsidiary of Socony-Vacuum Oil Co., has decided to build a new pipe line from the San Joaquin Valley to its Torrance Refinery in Los Angeles basin and construction will get under way early in May. The new line will be 88 miles long and consist of combination 8 and 10-inch welded pipe. From Emidio to Lebec the line will be 8-inch but from Lebec to Torrance the pipe will be increased to 10-inch in diameter. This new installation will follow the same general route as the company's present line up to a certain point but will follow a different route going through Los Angeles in order to minimize costs.

The company is at present working out the right of way but should have this preliminary work finished within a few weeks. Tentative plans call for one additional pump station but this is subject to change. General Petroleum has been reconditioning its facilities at the various pump stations along the old line for several months and in a number of cases has erected additional tanks and re-arranged pipe line facilities within the station grounds. This preliminary work was completed about two months ago. No information is available as to what disposition will be made of the company's old pipe line so far as operating status is concerned but it is likely the old system will be used for the transportation of light gravity oil or whenever the pressures are low. General Petroleum's existing line consists of an 8-inch string extending from Elk Hills to Los Angeles harbor and has been in use for more than 20 years. It was originally a screw line but consistent reconditioning work has converted it to a welded line.

Barton Arch in Central Kansas Indicates Major Oil Province

By E. G. WOODRUFF
Consulting Geologist, Tulsa

Kansas is the first state in which oil was found in the Mid-Continent region. There was an oil well in Kansas soon after the Drake discovery well in Pennsylvania more than 75 years ago. Hence Kansas produced some oil for 75 years and has been a steady producer for nearly 50 years. Reliable records show production of oil in the state for each year since 1889 and surely some entered the regular market before that time. Another record has been added to the history of petroleum in Kansas recently, namely, the week of February 23, 1935, production reached 146,750 bbls. daily which is the highest ever reached in that state. Furthermore this was not just some flush production which will not be sustained but was the total from the many old stripper wells plus production from the newer pools in the western part of the state. It is the purpose of this paper to point out some of the main geological features which have made it possible for the state to have given approximately 725,682,000 bbls. of oil and to show how the newer fields will lead to even greater production in Kansas.

Kansas has been called a "Plains State" and that is a proper designation by the observer of the surface only. There are some hills in the eastern part of the state but for the most part its surface is a plain gently sloping eastward. From the eastern part where the surface is less than 1,000 feet above sea the plain gradually rises to nearly 5,000 feet at the western state line. While it might be called a plain to the surface observer it is not so to the geologist who has deciphered the subsurface from the records of many thousands of deep wells. These wells have drilled through limestones, sandstones, shales and even into granite as shown by the columnar and cross sections on the accompanying maps. If we were to take these formations off layer by layer to see the surface as revealed after each formation is removed the area would appear not as plains but as a state with mountain ridges of granite like the "Rockies," with plateaus of limestone, dip slopes of sandstone and "basins" filled with lakes and seas with rivers flowing into them.

The main geological features which are important to the oil man are two uplifts and three basins. The uplifts are the granite mountains from north to south a little east of the center of the state called the Nemaha Ridge and shown on the accompanying map; and the Barton Arch to the northwest of the center; the depressions are the Cherokee Basin in the southeast part of the state, the Salina Basin between the Barton Arch and the Nemahas and finally the Dodge City Basin in the southwest corner. The ridges and mountains were land in earlier geological time and the basins held lakes and seas bordered by plains.

Nemaha Ridge

The Granite Ridge is considered the most important geologic feature in the state because the sands for so many of the pools of the eastern part of the state were eroded and washed from it into the basin and the mountain anticline itself formed a trap for large pools; the Barton Arch is considered a very important feature because it covers a large area in which many new pools have been developed and over which there is promise of many more.

Before the limestones and sands were deposited over Kansas there was a moderately high granite mountain range trending from the state line north of Tonkawa, Okla., northward to Oxford, Eldorado, Elmdale and farther northeastward. This range was the Nemaha Mountains. They were steepsided moderately high mountains. They were very old being uplifted in early geologic time and they persisted to early Pennsylvanian as shown in the cross section on the map. Sands and the materials for limestones and shales were washed from them into the basins to the east and to the west. Later the mountains disappeared entirely under the sea and the formations we now see were washed over them.

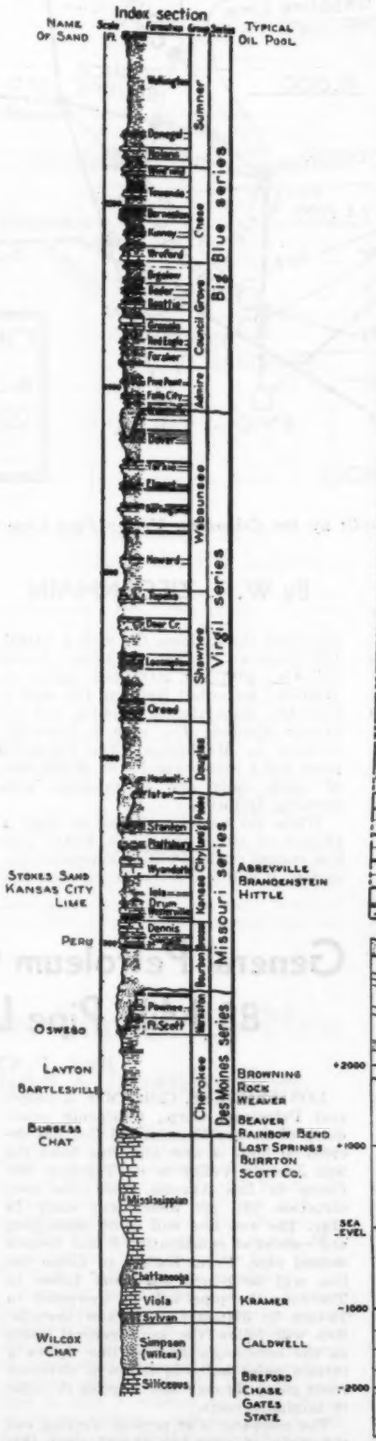
On the east flank of the Nemahas, which is the west side of the Cherokee Basin, there must have been salt water lakes or seas.

N. W. Bass, U. S. Geological Survey, in "Origin of Bartlesville Shoestring Sands in Greenwood and Butler Counties, Kansas," A.A.P.G. Bulletin, Vol. 18, No. 10, page 1,313, 1934, states that the pools in that region were shoreline trends such as the Sallyards, Teeters, Lamont, and Quincy. These were strips of sand beaches along the shore line with the Nemaha Mountains to the west and the sea to the east. These strips of beach sand were buried under other formations and oil seeped into them. These beaches were prevalent in Bartlesville time. The shoreline trends which have been discovered have been almost completely worked out but there is a constant search for other trends. Such search seems reasonable because if there was a sea or lake there must have been a shore completely encompassing it and there were probably other trends where the beach was sandy. New pools may be expected in that region.

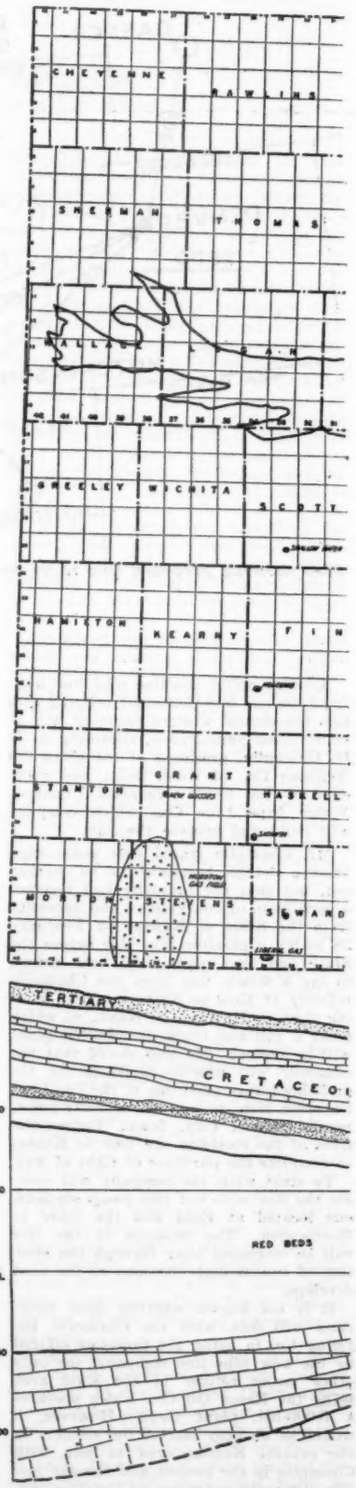
State Overlies Granite

There are the pools along the crest of the granite ridge. It seems unreal to think of granite in Central Kansas where there is no granite on the surface in the whole state, except a few acres at one place, yet we know that the whole state is underlain with granite. The drillers of the first granite well at Elmdale called it red sand and drilled over 800 feet into it before the well was abandoned yet the samples look just like the fragments of granite in a monument yard. Since the first granite well was drilled the operators have learned to recognize the rock and have reported it from many places. These occurrences have been platted on maps and the depths compared. From this data it is found that there is a high ridge trending slightly east of north across the state, along the line marked Granite Ridge on the map. The formations on both sides of the ridge dip away from it and those over the top form a complete arch or anticline. There are sand beds on both sides which raise towards to top but pinch out up the dip. They are the shoreline sand reservoirs like Florence, Rainbow Bend, Sallyards, and Teeters. There are sand beds which arch over the top. These are the Augusta and Eldorado Pools.

The granite ridge has contributed more to the petroleum geology of Kansas than any other single feature. It furnished material for the limestones and shales; it was from these mountains that a large part of the sand came to form the oil sand beds. Probably the drillers have found all of the big pools in the Granite Ridge area, but certainly there are extensions of old ones and new small ones to be found.



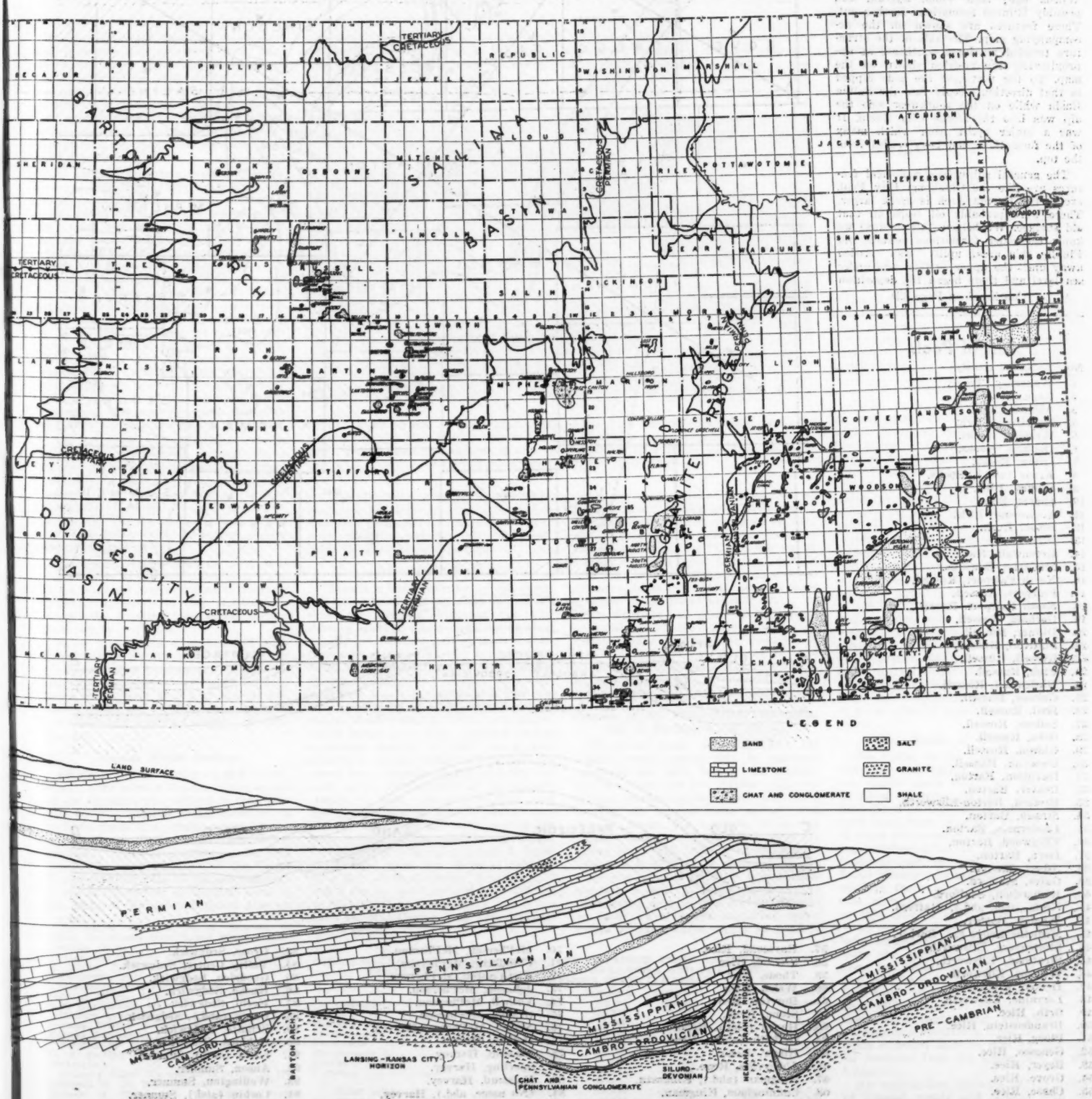
Columnar log of Kansas showing principal producing formations in several fields



but none more than a mile wide. These streams deposited sands along the channels and banks. Thus were laid down narrow strips or "Shoestring" sands, one, two or three locations wide trending northwest-southeast. This condition prevailed in Cherokee time when the Bartlesville, Tucker, Burgess, Dutcher and others of this group of Pennsylvanian sands were deposited. Because these sands are not deep in the southeast part of the state many hundreds of wells have been drilled and it would seem therefore that all of the pools have been found, however new pools and new extensions to old pools are still frequently found.

Barton Arch

There is evidence now to point out a petroliferous province in northwest Kansas, called the Barton Arch shown on the accompanying map. The earlier ideas of Kansas were that it was a great basin between to Ozarks of Missouri and the Rocky Mountains. That idea might still prevail if deep wells had not been drilled and the records compared. Some of the wells in western Kansas before 1925 had oil or gas or shows of oil or gas under conditions which did not seem to fit with the deep basin idea. Other holes were drilled deeper than expected without results. Geologists speculated on these things but could not reach a reasonable conclusion. The first reasonable suggestion came when M. M. Valerius drilled a well in Russell County in which a green shale was found at 3,340-80 feet. John A. Udden in "Occurrence of Ordovician Sediments in Western Kansas." A.A.P.G. Bul. 10, page 634, 1926, examined the samples and submitted them to others for confirmation. The conclusion was that the formation was old, probably of Ordovician age. This, and other data, then available indicated an uplift in the great basin. The geologic feature was called the Barton Arch. Sufficient data has now been accumulated to give its approximate extent, form and oil possibilities. Though it is arch over in true anticlinal form as shown by the map and cross sections accompanying this paper it is so big that it is truly a major uplift. The drilling has gone far enough to show only the main outlines of this great structure, and especially to the northwest exploration has not shown the extent of the arch in that direction. But we do know that there is a big structure with tremendous petroleum possibilities under the following counties: Barton, Rush, Pawnee, Rice, Elsworth, Russell, Ellis, Trego, Rooks, Graham, and possibly Phillipps, Norton, and Decatur. In addition there are parts of the counties contiguous to those named which might be included in the possible area. Fifty-four pools have already been opened in this area. It should be remembered that only the main features of the structure are now known, hence sand bodies and minor structures may be found. From the oil man's standpoint it is unfortunate that only a few of the features of the uplift can be determined from the surface and that the information to guide the development must come from drill-



Geologic cross section and areal map of Kansas modified after Betty Nellett Kansas Geologic Society

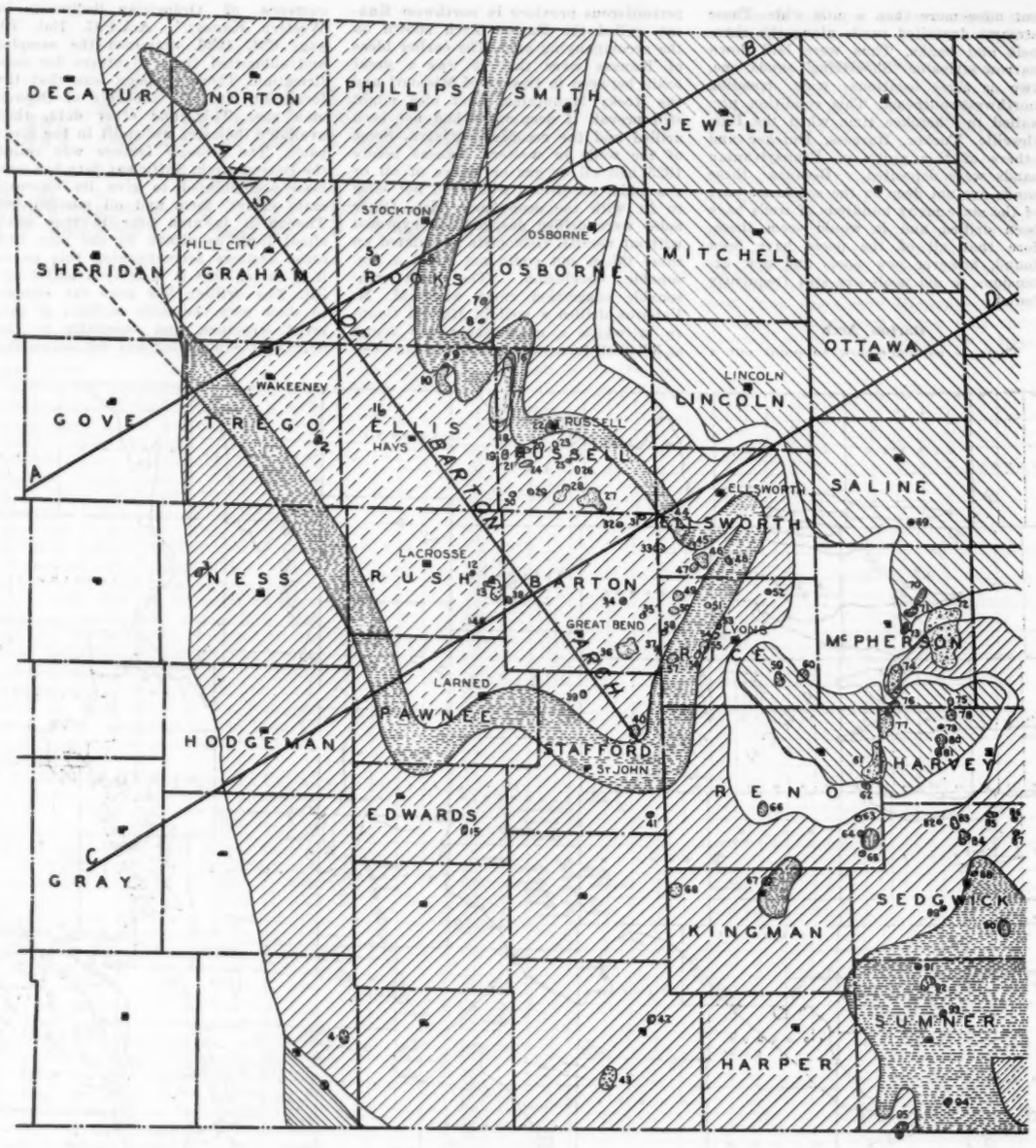
ing. However, small local structures are very significant.

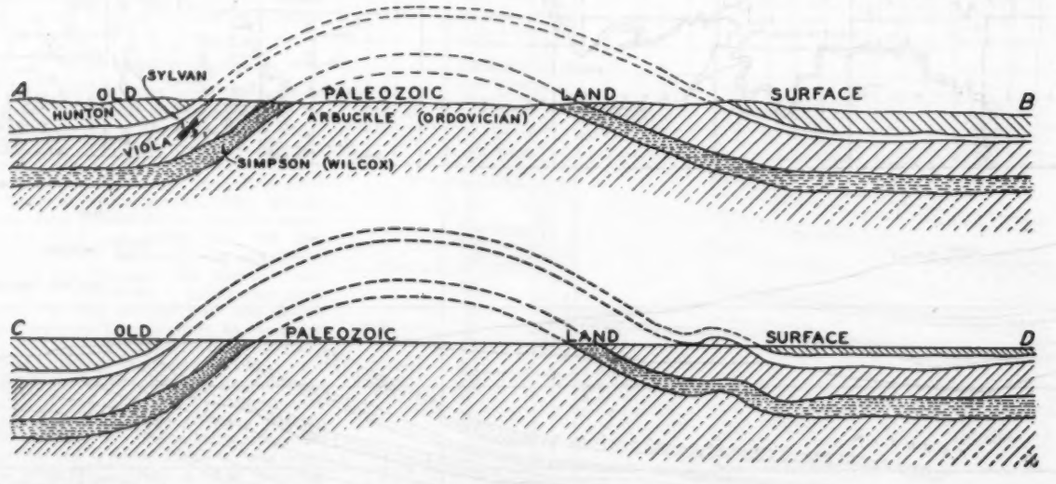
Deeply Buried Beds

The proper conception of the region is to think of it as it would appear if all of the Pennsylvanian and Mississippian formations were removed because it is not until those strata are drilled through that the oil possibilities appear except possibly there is some oil in higher beds where the oil from older beds has seeped up into the Mississippian and Pennsylvanian. In the pre-Mississippian time the region was a great plateau. There was an area of hard Arbuckle limestone on the surface over Barton, Rush, Ellis, Graham and parts of adjacent counties. Surrounding the Arbuckle was a belt of Simpson with sands of Wilcox age; then Viola, Sylvan, and possibly Hunton formations farther out. These features are shown on the accompanying map. The axis of the structure trended northwest-southeast at approximately the position shown on the map. To the northeast the beds dipped in that direction steeply into the Salina Basin while on the southwest side the dip was into the Dodge City Basin. It was a major uplift from which many of the formations had been eroded from the top.

The general subsurface geological features are like the Oklahoma City Pool, except the Barton Arch is much larger. There were probably oil seeps on that old surface. We believe this because we know the older formations contain oil. Finally this great uplift was eroded away until the upper surface was under sea level and there began the deposition

(Continued on Page 32)





List of Pools

No. Name, county—

1. Wakeeney, Trego.
2. Rega, Trego.
3. Aldrich, Ness.
4. Morrison, Clark.
5. Webster, Rooks.
6. Dopitha, Rooks.
7. Laton, Rooks.
8. Kruse (abd.), Rooks.
9. Hadley, Ellis.
10. Shutts, Ellis.
11. Yocemento, Ellis.
12. Bison, Rush.
13. Otis, Rush.
14. Greenwalt, Rush.
15. McCarty, Edwards.
16. North Fairport, Russell.
17. Fairport, Russell.
18. South Fairport, Russell.
19. Gorham, Russell.
20. Dillner, Russell.
21. Sullivan, Russell.
22. Russell, Russell.
23. Fink, Russell.
24. Niedenthal, Russell.
25. Gurney, Russell.
26. Hall, Russell.
27. Sellens, Russell.
28. Ochs, Russell.
29. Gideon, Russell.
30. Donovan, Russell.
31. Davidson, Barton.
32. Beaver, Barton.
33. Breford, Barton-Ellsworth.
34. Straub, Barton.
35. Lanterman, Barton.
36. Ellinwood, Barton.
37. Isern, Barton.
38. Albert, Barton.
39. Gates, Stafford.
40. Richardson, Stafford.
41. Neola (tem. abd.), Stafford.
42. Whelan, Barber.
43. Medicine Lodge gas, Barber.
44. Stoltenberg, Ellsworth.
45. Stratman, Ellsworth.
46. Wilkens, Ellsworth.
47. Heiken, Ellsworth.
48. Lorraine, Ellsworth.
49. Orth, Rice.
50. Brandenstein, Rice.
51. Ploog, Rice.
52. Geneseo, Rice.
53. Beyer, Rice.
54. Grove, Rice.
55. Chase, Rice.
56. Sharpe, Rice.
57. Raymond, Rice.
58. Steckel, Rice.
59. Thode, Rice.
60. Welch, Rice.
61. Burrton, Reno.
62. Stone, Reno.
63. Haven (abd.), Reno.
64. Griffith (abd.), Reno.
65. Hilger, Reno.
66. Abbeyville, Reno.
67. Kingman (abd.), Kingman.
68. Cunningham, Kingman.
69. Olson (abd.), Saline.
70. McPherson, McPherson.
71. Chindberg, McPherson.
72. Ritz-Canton, McPherson.
73. Johnson, McPherson.
74. Voshell, McPherson.
75. Graber, McPherson.
76. Nikkel, McPherson-Harvey.
77. Hollow, Harvey.
78. Hesston, Harvey.
79. Sperling, Harvey.
80. Halstead, Harvey.
81. (No name, abd.), Harvey.
82. Bentley, Sedgwick.
83. Gross, Sedgwick.
84. Valley Center, Sedgwick.
85. Goodrich, Sedgwick.
86. Kuske, Sedgwick.
87. Kechi, Sedgwick.
88. Curry (abd.), Sedgwick.
89. Schulte, Sedgwick.
90. Robbins, Sedgwick.
91. Latta (abd.), Sumner.
92. Anson, Sumner.
93. Wellington, Sumner.
94. Corbin (abd.), Sumner.
95. Caldwell, Sumner.

Engineers Recommend Oil Field Brine Disposal in Selected Surface Streams

By LUDWIG SCHMIDT,[1] H. M. THORNE[2] and C. J. WILHELM[3*]

Many deep-seated strata of sandstone and limestone are saturated with salt water, or brine, and when these strata are penetrated by wells drilled for oil and gas, the brines are released and may be brought to the surface through the oil and gas wells. The disposal of these brines has been a long-continuing problem with many technical, economic and legal complexities.

Oil and gas operators must find ways to control the flow of salt water from the underground horizons into producing wells, or to dispose of the brines when they reach the surface, without increasing the production costs of the accompanying oil beyond its present economic worth. Farmers and stock raisers in the vicinity of producing fields are entitled to protection against the detrimental effects of these brines upon their crops and livestock. When large amounts of brines have contaminated certain surface streams and other sources of potable water, even at long distances from producing fields, individuals and municipalities have been confronted with the very definite necessity of having these brines controlled. The possible effect upon fish and other aqueous life also is recognized.

All of these considerations require bringing into balance in as equitable a manner as possible the various factors necessary to eliminate costly damage to property and contamination of surface and underground water-supply sources in such a way that the costs of disposal will not result in an unreasonable cost of producing oil and gas.

An impartial appraisal of these conditions leads to the conclusion that study of the technical considerations is the most desirable approach to this problem, although the economic and social factors must not be neglected.

Brine disposal is a problem of such magnitude in certain areas in the State of Kansas that in August, 1934, a co-operative agreement was made between the Kansas State Board of Health and the U. S. Bureau of Mines for a co-operative technical study of methods of brine disposal.

Kansas Fields Studied

Oil fields in the vicinity of McPherson, Kans., were selected for the initial study, as the situation was critical in that area due to the possible contamination of horizons containing potable water, known as the Equus Beds, by oil field brines produced from formations underlying them. The contamination of the Equus Beds would not only do material damage to one of the richest agricultural areas in the State of Kansas but would also require municipalities, such as McPherson and Newton, to seek elsewhere for their water supply. The fields being studied in the McPherson area are Burrton, Harvey, Hollow, Johnson, Nikkel, Ritz-Canton and Voshell; recently these studies have been extended to include the entire drainage area of the Arkansas River above Wichita and the old "stripper" fields in south central Kansas.

Pick-up pit on one of the water sheds in the Van Salt Water Disposal Co.'s system in the Van Field, Texas. Storage capacity approximately 25,000 barrels. Pump station contains pumps that transfer this water to large central reservoir north of field for final disposal

Composition of Oil Field Brines

There is a wide variation in the chemical constituents of oil field brines, as shown by analysis. However, the chlorides of sodium, magnesium and calcium usually predominate, and sulphate and bicarbonate combinations are not unknown. Small amounts of the rarer salts such as iodides, bromides and barium compounds have been found in some brines. The specific gravity of oil field brines usually ranges from 1.001 to 1.175, and exceptional brines have been analyzed having a specific gravity of 1.205. As a comparison it is interesting to note that sea water has a specific gravity of 1.025. Oil field brines vary greatly in the concentration of their dissolved contents, and the proportions of the respective ions present vary even in waters having the same gravity. This condition is shown, for example, in Samples 1 and 3, Table 1. Table 1 gives the chemical analysis of a few oil field brines. Samples 1, 2 and 3 are representative of several fields in Oklahoma, and Samples 4 and 5 are from the Ritz-Canton area near McPherson, Kans.

Although the iron content usually is determined in making a water analysis, it is not included in Table 1 as the iron contained in the water may come from the tubing through which the oil and water are pumped. A comparison of Samples 4 and 5 show the differences in the waters produced in the same oil field but from different producing horizons. Sample 4 is from the "Chat" horizon at a depth of about 2,900 feet, and Sample 5 is from the Viola limestone at a depth of about 3,400 feet. Both samples were obtained in the Ritz-Canton Field.

The limits of this paper do not permit a discussion of the effect of brine on animal and vegetable life; however, it should be pointed out that the oil and oil emulsions often carried by brines may be more destructive to vegetation and fish life than the brines themselves.

Sources of Oil Field Brine Contamination of Surface Water Supply

There are many ways in which the surface water supply may be contaminated by oil field brines. In general, however, there are two classes: (1) subsurface contamination, most important because of its insidious nature and brought about, for example, by poorly plugged wells or wells in which there are casing leaks; (2) surface contamination from the brine that is produced on the lease and allowed to flow into surface streams or held in ponds or reservoirs that permit seepage into surface streams or fresh water sands supplying water wells. Surface water supply as used in this report not only include streams, ponds, lakes and other impounding sources but also fresh water sands near the surface that supply water wells either for individual or municipal uses.

Sub-surface Contamination

A well causing sub-surface contamination may discharge its offending brine into the system continuously without any surface indication of trouble. The action, like that of an infected tooth, may continue for years without anyone being aware of the detrimental effects. With wells, frequently all surface indications of their locations become obliterated, but the contamination of fresh water strata continues.

In many areas the hydrostatic head of the brine from a lower formation is sufficient to cause the fluid level to stand above the fresh water formations. In several sections of Kansas the hydrostatic head in some brine-carrying formations causes artesian flow. In some areas this flow may not depend upon hydrostatic head alone. Sufficient gas may accompany the brines to flow them over the casinghead, but the quantity of gas may not warrant its commercial development. Under such conditions an improperly plugged well may allow great damage to the surface water supply.

Contamination may take place not only in the immediate vicinity of a poorly plugged well, but in addition, brines may enter a sand several hundred feet below the surface and travel some distance from the well to points where these same formations, nearer the surface, serve as fresh water supplies. Cases also are on record in which oil-producing horizons in the vicinity, but at some distance from abandoned wells, have been damaged. In this connection it should be noted that sands ordinarily termed "dry" when they are penetrated by wells may be either water-bearing or oil-bearing at some other locality, due to stratigraphic conditions.

Faulty Casing

Faulty casing and casing seats may be responsible for sub-surface contamination. Improper casing methods may allow brines to escape from the formations in which they occur naturally and enter fresh water zones.

Probably, however, the most common source of trouble is where brines from upper sands enter the oil-producing zone through corroded casing or under improper casing seats. Brines from upper formations that enter the well often increase greatly the quantity of brine that is produced with the oil, and in some instances upper-sand waters have flooded the "pay" formations from which the wells produce oil. Because of the dangers of water migration from the upper sands, many oil companies make complete chemical analyses of samples from the principal water sands as they are penetrated. These analyses are carefully filed and frequently have been found of great value in repairing wells in later years.

Repair of Wells

The casing in old wells often is corroded to the extent that brines from the upper sands enter the wells and, as stated, increase the total quantity of fluid lifted to the surface. Beneficial results have been obtained by the repair of wells, for example, setting and cementing another string of casing. Also the judicious use of mud fluid has been found effective. In certain producing formations there is a comparatively definite oil-water contact. Ideal operations in this type of field would permit the water to rise gradually along the geologic structure as the oil is withdrawn from the reservoir. When such conditions are recognized, the water production may be reduced materially by "bottom hole" plugging methods in accordance with a carefully developed program based upon engineering knowledge of underground conditions. Thus large quantities of water may be shut off and the oil produced from the upper part of the formation.

An outstanding example of the value of general repair and bottom hole ce-

TABLE 1—ANALYSIS OF WATER SAMPLES OBTAINED FROM SELECTED REPRESENTATIVE PRODUCING AREAS IN OKLAHOMA AND THE RITZ-CANTON FIELD, McPHERSON COUNTY, KANSAS

Radical—	Sample 1 p.p.m.	Sample 2 p.p.m.	Sample 3 p.p.m.	Sample 4 p.p.m.	Sample 5 p.p.m.
Calcium	10,752	12,822	4,708	1,478	4,420
Magnesium	2,691	2,748	1,939	483	2,230
Sodium	76,915	76,400	34,058	12,215	9,325
Carbonate	.....	.....	.....	.....	.....
Bicarbonate	31	92	.....	87	156
Sulphate	348	184	44	6	10
Chloride	145,244	146,804	66,486	22,800	28,600
Total solids	235,982	238,045	107,235	47,069	44,741
Specific gravity at 60° F.	1.162	1.162	1.076	1.024	1.031

[1]Petroleum engineer, U. S. Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

[2]Associate refinery engineer, U. S. Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

[3]Assistant petroleum engineer, U. S. Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla.

*Before annual meeting Kansas Water and Sewage Works Association, University of Kansas, Lawrence, Kans.

Printed by permission of the Director, U. S. Bureau of Mines. (Not subject to copyright.)

Authors' title: "Co-operative Study of the Disposal of Oil Field Brines by the U. S. Bureau of Mines and the Kansas State Board of Health."

menting in the Cushing, Okla., Field was given by Wardwell and his collaborators[4]. The records of 22 wells cemented in the Cushing Field showed that prior to the repair work, the average total daily production was 242 bbls. of oil and 3,977 bbls. of water. The total production of the wells after being repaired was 910 bbls. of oil and 1,107 bbls. of water per day; thus the oil production was increased 667 bbls. per day and the water decreased 2,870 bbls. per day. The decrease in water included the production from two wells that were plugged and abandoned and from one well that was plugged back to produce gas from upper sands. However, the combined water production from these three wells was equal to only 506 bbls., or approximately 18 per cent of the total decrease.

Work in the Powell, Texas Field, as described by Hill and Sutton[5] exemplifies another set of conditions where careful engineering study led to corrective measures through systematic casing programs and bottom hole plugging.

It should be pointed out that even with successful bottom hole plugging programs there often remains large quantities of brines to be disposed of.

Bottom hole plugging, unfortunately, is not always successful. For example, in many limestone horizons a water table, or oil-water contact, is not recognized definitely. In such fields, it becomes necessary to produce the water with the oil. Sometimes the brine production can be decreased materially by holding a back pressure on the wells and limiting the production of total fluid to hold back the water. Successful operation under those conditions requires very close co-operation of all the interests involved.

Surface Contamination

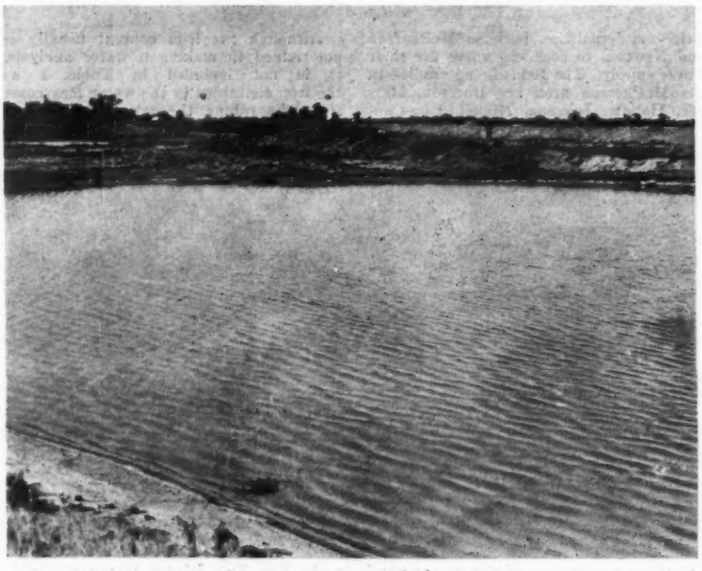
Surface contamination of fresh water supplies occurs where brines brought to the surface in the production of oil or gas are allowed to flow over the ground or into surface streams. Sub-surface supplies of fresh water also may be contaminated by brines seeping through the bottoms of ponds and reservoirs into fresh water strata. Still another condition leading to contamination is the flow of brines in the beds of streams or drainage ditches that are effluent. Effluent streams may be defined as those streams in which the stream water flows into the adjacent sub-surface formations during seasons of the year when the water table of the adjacent formations is below the bed of the stream. Under these conditions it seems that effluent streams carrying high concentrations of brines are likely to contaminate the fresh water supplies in adjacent formations.

Methods of Disposal

The disposal of oil field brines is a problem of considerable magnitude because of the large quantities that sometimes are produced with the crude petroleum. The problem is not new, but its importance varies in different fields depending upon the quantities of brine produced from different horizons as well as the agriculture and urban development in the area. Likewise the methods used to combat this problem vary with the conditions. Often the production of oil field brines is decreased materially and the attending production of the petroleum increased by the judicious use of "bottom hole" plugs and other methods of general repair and cementing of wells, some phases of which have been discussed briefly in the forward section of this report dealing with repair of wells.

Evaporation Ponds

Evaporation ponds are probably the oldest of the methods used to prevent the contamination of surface fresh water supply by oil field brines, and they are the most commonly used method in disposing of salt water, mainly because of the comparatively low initial and operation costs. The pits ordinarily have an area of 500 to 10,000 square feet and range in depth from 1 to 15 feet. In the Ritz-Canton Field, for each pond the average area of the evaporating surface is approximately 10,800 square feet. Tests made by Schmidt and Devine[6] on a brine pond having an area of approximately 8,100 square feet in Osage County, Oklahoma, showed a net evaporation of 1.11 inches or 0.69 gallon per square foot or a total of approximately 5,589 gallons for the test period from July 22 to November 30th, inclusive. However, during this period the rainfall was 15.21 inches. Thus if the rainfall had been excluded the net evaporation would have been approximately 16.32 inches or 10.18 gallons per square foot or a total of approximately 82,458 gallons. Thus even under the most favorable conditions exclusive of rainfall, natural evaporation alone would not have exceeded 15 bbls. per day in that particular location. In sections of the country where there is an appreciable annual rainfall, it is evident that natural evaporation alone cannot be used successfully except on leases producing very small amounts of brine. Water sprays materially increase the rate of evaporation.



Large water reservoir for collecting salt water produced from wells in the Van Pool, Van Zandt County, Texas. This water can be delivered into disposal canal when evaporation is less than accumulation

Reservoirs

The practice in many fields is to impound brines in large ponds or reservoirs and release them into surface streams during periods of high water. A somewhat similar method, but more refined, is called the stream-control system. A close check is kept of the mineral analysis of the stream water, and the brines are discharged at a rate which will permit their dilution sufficiently to assure an unharmful ultimate total salt concentration of the stream water. This method prevents large "slugs" of brine flowing downstream as sometimes occurs when the contents of ponds are released during high water. Controlled brine discharge has been used successfully in some localities in Kansas and in other states. This method could well be incorporated with and adapted to a flood control project.

Some large reservoirs have been built to permit natural evaporation. It should be pointed out, however, that the salt residue ultimately will have to be disposed of after the water has evaporated.

The return of oil field brines to subsurface formations is reported to have been quite successful in some fields. In other areas this method has failed. Operations known to the writers which have given the most satisfactory results are in areas in which the brine is returned to the same formation from which it was produced (but lower structurally) through "edge" wells; and at fairly low operating pressures. In general where pressures in excess of 250 pounds per square inch are required, the operation is considered uneconomical. Also the higher the pressure the greater the possibility of the brine breaking through corroded casing or forcing out casing seats; thus entering other formations which may contain oil or fresh water. In connection with returning brines to subsurface formations one of the greatest difficulties encountered is the sealing up of the formation either by extraneous material—for example, hydrated iron oxide carried by the input water—or by a chemical action between dissolved salts in the two waters. For example, if the input water is high in carbonates and the formation water contains a large amount of calcium chloride, calcium carbonate will be precipitated, thus sealing the formation.

The return of brines to formations other than those from which the fluid is produced is hazardous. Migration may take place with detrimental effect to sources of fresh water supply and to oil and gas-bearing strata, either adjacent to or at a considerable distance from this input well. Migration is not so likely to be detrimental when the brine is returned to the formation from which it is produced; provided systematic casing and drilling programs have been carried out.

In view of the obvious hazards in this type of brine disposal, the method should receive careful study and consideration and should be under the supervision of a technical body with authority to approve or reject the applications of any operator or group of operators to return brines to subsurface formations. To be effective and of optimum benefit, the regulatory body dealing with this problem of returning oil field brines to subsurface formations should have representation from or ready means of consultation with established state agencies concerned particularly with the geology, the oil and gas resources, fresh water supplies, and health conditions within the state.

Diversion into Selected Surface Streams

The diversion of oil field brines into selected surface streams offers possibilities and may well be considered in relation to the present problem. To date such disposal methods have been confined principally to selected fields located in the oil-producing states bordering coastal waters, for example, Texas and California. However, such a method is not without merit as possibly applying to the inland states of Kansas, Oklahoma, Arkansas, and others having streams whose natural waters contain a high mineral content; for example, the drainage area of the Arkansas River. The waters of the Arkansas River were highly mineralized long before the development of oil fields in western and central Kansas. Data obtained by Parker[7] are of interest in this connection. His reports included data of water analysis of water samples obtained at intervals between November 26, 1906, and December 7, 1907. The three principal sampling stations were Deerfield, Great Bend and Arkansas City. Lack of space prevents giving the complete data, but Table 2 summarizes some of the results briefly.

Table 2.—Condensed Data of Mineral Analysis of Water Samples Obtained from the Arkansas River at Selected Points November 26, 1906, to December 7, 1907.

Constituents in p.p.m.—	Deerfield	Great Bend	Arkansas City
Max. total solids....	2179	1385	1309
Min. total solids	410	756	707
Mean total solids ..	1571	1158	990
Maximum calcium ..	256	227	128
Minimum calcium ..	97	98	64
Mean calcium	186	149	95
Max. magnesium....	88	56	40
Min. magnesium....	37	7.2	7.2
Mean magnesium...	62	40	24
Max. sodium & pot.	801	227	396
Min. sodium & pot.	29	49	162
Mean sodium & pot.	215	167	243
Max. bicarbonate ...	296	295	295
Min. bicarbonate	144	178	172
Mean bicarbonate ..	231	230	253
Maximum sulphate.	1201	719	415
Minimum sulphate..	65	347	57
Mean sulphate	826	536	193
Maximum chlorine..	104	140	440
Minimum chlorine ..	39	49	125
Mean chlorine	72	99	292
Mean silica	29	28	3.1
Mean iron	4.9	1.2	0.2
Mean nitrate	3.2	1.9	0.2

It should be pointed out that the Arkansas River is definitely considered by some engineers and geologists to be an effluent stream, during certain seasons of the year, as far south as Wichita and possibly to Arkansas City.

It is recognized that the declaring of certain streams or drainage channels available for the disposal of oil field brines involves many factors, such as legal aspects of riparian rights and inter-state agreements, that the Bureau of Mines has had no opportunity nor is in a position to study and report upon. However, this waste-disposal method is not without precedent, and in certain areas the legal and financial difficulties may become of secondary consideration in relation to the acute industrial and social conditions that may be brought about through the inability to dispose of large volumes of waste water by other means.

The success of any such forward-looking project of waste disposal necessarily would depend upon the mutual understanding of its many inherent ramifications by all groups affected by it. As a first step, the opinions and views as to the feasibility of the general plan should be obtained from qualified representatives of the neighboring states, their governmental subdivisions, and the various industries in the region.

Recovery of Dissolved Constituents in Brines

The recovery of the various salts from oil field brines is not an economical method for the disposal of these brines except in very few instances. Some brines contain the rarer salts such as bromides and iodides and there is a possibility that brine disposal plants for the recovery of these rare salts might prove profitable. Although this method of disposing of oil field brines is very restricted, in the course of the present investigation selected samples from each field are being analyzed in the laboratory for bromides and iodides. If a brine is found

(Continued on Page 32)

[4] Wardwell, D. P. and others, Water Problems in the Northern Part of the Cushing Field, Creek County, Okla.; Bureau of Mines Co-operative Report, 1927.

[5] Hill, H. B. and Sutton, Chase E. Production and Development Problems in the Powell Oil Field: Bull. 284, Bureau of Mines, 123 pp. 1928.

[6] Schmidt, Ludwig, and Devine, John M., The Disposal of Oil Field Brines: Report of Investigaitons No. 2945, Bureau of Mines, June 1929.

[7] Parker, H. N., Quality of the Water Supplies of Kansas: U.S.G.S. Water Supply Paper 273, 1911; pp. 269-288.

Modern Developments in Design of Gas Engines Lower Operating Cost

By A. K. HEGEMAN
Sales Engineer, Smith-Booth-Usher Co.*

During the decided lull in business which has been an occasional topic of conversation during the past few years, several of the manufacturers of oil field internal combustion engines have been in a position to do considerable research and design work with the object of improving their equipment in anticipation of a revival in demand. Most of the effort expended has been directed toward obtaining more horsepower per pound of metal; in other words, more power per dollar of cost. Different organizations have naturally pursued different methods of attaining this objective, but it is possible to classify these methods under three headings:

1. By development of lighter higher speed designs.
2. By increase in piston speed of present designs.
3. By attainment of increased thermal and mechanical efficiency through improvement of existing designs.

Let us consider the various methods in the order mentioned above. Probably the most striking example of the adaptation of high speed engines to oil field work has been their increasing use in many sections of the country as oil well pumping units. Most of the engines of this type on the market at the present time have been developed from tractor and truck motors. While some manufacturers offer their standard automotive motors with no change other than the substitution of a natural gas mixing valve for the liquid fuel carburetor, those builders who are attempting to sell on quality rather than on price have for this heavy continuous service incorporated improvements such as renewable valve seats, heavier supports, higher compression heads, heavier duty clutches, and larger capacity lubrication and cooling systems.

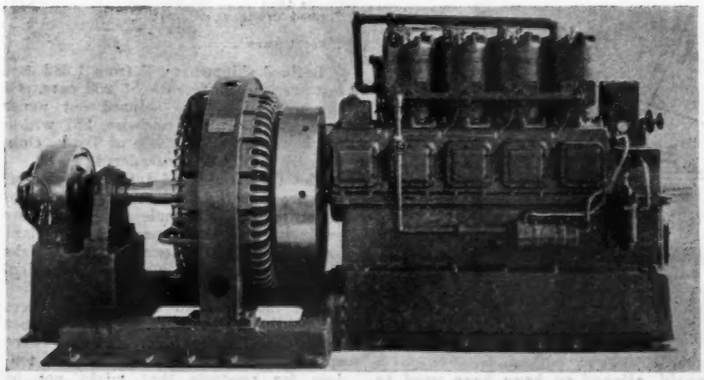
Engines of this type are now being used for auxiliary purposes in absorption plants and compressor stations. One engine of this type has now been in operation locally for over 30,000 hours at 1,050 r.p.m. and 51-pound B.M.E.P., and is pronounced by the operating engineers to be as satisfactory as an electric motor. This engine originally replaced an electric motor which was consuming power purchased for 8½ mils per K.W.H. and has to date saved its original cost seven times, fuel consumed being charged at 10 cents per M.C.F. and oil at 35 cents per gallon. An operator at Huntington Beach has eliminated some 8 or 10 electric motors from his plants in favor of this type of engine and expresses himself as being highly pleased with the results.

While the high speed engines discussed above are excellent for oil well pumping purposes, the smaller sizes are somewhat limited in their ability to develop sufficient horsepower for pulling tubing and for other well servicing purposes. To meet the demand of the operator who asks for a unit which is suitable for servicing as well as for pumping, the familiar horizontal single cylinder engine in greatly improved form is available. Several manufacturers now supply these engines in designs which can be operated on natural gas or Diesel oil. When operated on Diesel fuel, some of the engines are available in the full Diesel type; some, in the semi-Diesel type.

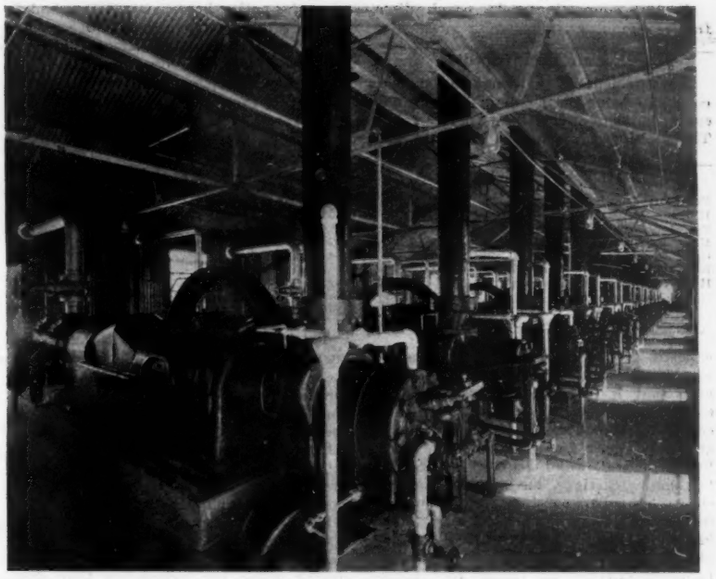
Vertical Type Engines

For those who desire engines somewhat heavier and more powerful than the multicylinder units already described but at the same time lighter and higher speed than the horizontal units, at least one manufacturer has developed a two-cylinder vertical unit requiring but 2 yards of concrete in its foundation which can be supplied either as a natural gas or as a Diesel engine. The engine develops in excess of 60 horsepower at a maximum rating pulling speed of 600 r.p.m. and 35 to 45 horsepower at pumping speeds of from 300 to 400 r.p.m. Several of these engines are in service in the Texas-Oklahoma fields and the type apparently meets with popular approval.

*Presented before the California Natural Gasoline Association.



Four-cylinder natural gas generator unit



Modern super two-cycle engine compressor plant, with overhead water jacketed exhausts

Auxiliary engines of a still heavier type with strokes ranging from 8 to 12 inches and speeds from 450 to 800 r.p.m., have also been developed. In size these range from 30 to 300 horsepower, at reasonable B.M.E.P., ratings of between 65 and 70 pounds per square inch. Engines of this type are being widely used in irrigation, pipe line and generation work and will undoubtedly be adopted as refinery auxiliaries as and when refinery engineers become more engine minded and come to realize that the use of electric motors is not only an expensive luxury but also constitutes patronage of the greatest competitor of the petroleum industry.

Rating of Engines

In selecting engines of this type, operators should compare the units offered, not so strongly upon catalog ratings, but upon a common B.M.E.P., and piston speed basis. Some manufacturers rate their engines rather closely to the power developed on test; others, more conservative, rate them according to the load which they can be expected to carry continuously without undue difficulties.

Not only have many interesting high speed units been developed for auxiliary purposes, but some builders have turned their attention to the development of higher speed compressor units. Some of these feature vertical engines and compressors; some, vertical engines and horizontal compressors, while one design makes use of the "V" engine incorporated in one unit with a horizontal compressor. It is urged in favor of these designs that the equipment requires less floor space and foundation yardage than the slow speed horizontal designs. It is doubtful if the actual manufacturing cost per unit of power will be any lower for these units than for the heavier horizontal units, this on account of the multiplicity of parts resulting from the multicylinder design.

Installation costs will undoubtedly be lower, maintainence costs higher, than for the heavier horizontal units. Crossheads not being practicable on this type of engine, power cylinder wear can be expected to be more rapid than in those designs wherein crossheads are incorporated. Before general acceptance it will be necessary for these lighter units to prove their ability to withstand the abuse to which oil field compressor equipment is subjected, more particularly their ability to carry heavy overloads, and to withstand the shocks caused by the entrance of liquid into the compressor cylinders.

Let us consider the second of the methods of obtaining more power per dollar of cost, that of increasing the piston speed of existing units. From the builder's standpoint this is undoubtedly the least costly method which can be used. Many of you will remember that less than 10 years ago the standard speed of practically every 20-inch stroke gas engine compressor unit on the market was 180 r.p.m. Some operators, pressed in emergencies for more power, voluntarily operated such equipment at speeds up to 200 r.p.m. At this excessive speed vibration and bearing loosening was in many cases experienced, but engine builders, observing that no serious damage resulted and pressed by highly competitive conditions, made some changes in the balance, the bearings and the weight of the moving parts and began to rate their units at 200 r.p.m. The major parts of most of these engines remained, however, as originally designed for 180 r.p.m. At the present time there are indications that competitive conditions have reached the stage where there may be a tendency again to increase the speed of this type of unit.

Grave Possibilities of Changes

To many operators, increases of 5 to 10 per cent in speed of existing units may seem of small moment but to those who realize the full meaning of the terms, "Inertia of Moving Parts" and "Unbalanced Inertia Forces," such changes are loaded with all sorts of grave possibilities. Briefly the inertia of a body may be defined as its tendency to remain in its present state of rest or motion. In plain language this means that a moving body wants to keep on moving and will keep on moving until brought to rest by some restraining force. In an engine or compressor this restraining force must be very rapid in its action at the end of the stroke. The exertion of this restraining force subjects practically all moving parts such as piston rods, connecting rods and crossheads to heavy strains. It also subjects stationary parts such as bearings and frames to the same heavy shocks and strains. When it is known to the person considering such matters that these forces vary as the square of the speed, not merely as the speed, and that a 10 per cent increase in speed creates a 21 per cent increase in the stresses to which most of the parts of the unit are subjected, he has full reason to pause and reconsider the advisability of such a move. Some of the results of excessive forces of this nature with which many operators are already familiar are:

Moving of engines on foundations.
Continual and excessive loosening and pounding of bearings.
Broken bearing wedge bolts.

(Continued on Next Page)

Broken connecting rod bearing bolts.

Broken connecting rods, crank discs, frames, etc.

Design Improvement

Improvement of existing designs has constituted one of the main activities of engine builders during the past five years. The old-time horizontal open crankcase, exposed gear, oil field pumping engine has been so altered in design and appearance that it is now in many cases an excellent auxiliary unit for gasoline and compressor plants. Crankcases, timing gears and valve gears are in many cases fully enclosed. Solid bearings poured in the main castings have been replaced either by roller bearings or by two or four-piece babbitted wedge adjustment bearings. Automatic lubrication has replaced oil holes into which an attendant formerly injected oil (often very intermittently) by hand from the familiar copper or brass oil can. Governing has been not only improved, but perfected. Some vertical models have been developed which would make excellent power units for centrifugal pumps.

At least two manufacturers of horizontal four-cycle engine driven compressor units have made radical changes in power cylinder head design in order to facilitate cooling of both the head and the valves. Such improvements in cooling naturally results in ability to carry heavier loads.

Force feed lubrication of bearings, adopted in at least two instances not only lessens bearing maintenance expense, but, by improving the overall mechanical efficiency of the unit, increases its ability to deliver more compressed gas per indicated engine horsepower.

Honed power and compressor cylinders are now supplied by at least two manufacturers, possibly by more. To go into a discussion of the merits of this process of finishing cylinder barrels is beyond the province of this paper. Suffice it to say that cylinders formerly bored with a manufacturing tolerance of .002 to .005 inch can be successfully honed to a tolerance of .0005 inch through their entire length. By wearing away the thin section of softened metal left on the cylinder walls by the boring mill, the honing process results in very hard cylinder walls with from two to three years added to the life of the cylinder through elimination of the "wearing in" process which is necessary with bored cylinders.

Probably one of the most striking improvements in engine design has resulted from the work of one manufacturer in the development of a 17"x20" two-cycle power cylinder with overhead exhaust. Five years of "cut and try" development work has resulted in the development of a power cylinder of this size with a resultant increase of 5 per cent in mechanical efficiency, a decrease of scavenging horsepower loss of 25 per cent, the elimination of the necessity of injecting cooling water into the exhaust and the practically entire eradication of detonation. This last has been somewhat contributed to by the superior wall and head cooling made possible by changes in jacket design but is more largely the result of improved piston characteristics. The 17-inch diameter piston, contrary to all earlier theories, actually dissipates absorbed heat so much more rapidly than it was formerly dissipated by the older 16-inch diameter piston, that the temperature of the 17-inch piston head is actually over 200° F. lower than that of the 16-inch piston. This lower piston temperature naturally results in lower fuel temperature, with consequent elimination of detonation, and its attendant difficulties.

The thermal efficiency of the two-cycle engine, as the result of improvement of the fuel injection apparatus which made its appearance in 1927, has been increased over the entire horsepower range and is now favorably comparable, if not superior to, that of the most efficient four-cycle engines. A test made on two engines, one a four-cycle unit, one a two-cycle unit, both 12½-inch bore by 20-inch stroke, all parts of the two engines being identical except the valve mechanism reveals the following figures:

	Four-cycle			Two-cycle		
Per cent load	50	75	100	50	75	100
Heat in useful horsepower, per cent	16.3	21.1	24.9	17.0	21.6	25.8
Friction heat, per cent	4.2	3.8	3.5	2.7	2.3	2.1
Heat to cooling water, per cent	28.2	27.6	27.4	27.8	26.7	25.4
Heat to exhaust, per cent	44.0	39.8	38.1	41.8	39.3	37.6
Radiation loss and unaccounted for, per cent	7.3	7.7	6.1	8.3	3.0	7.3
Heat to scavenging, per cent	....	....	....	2.4	2.1	1.8
Total	100	100	100	100	100	100

This test was made with the most accurate instruments available for the purpose, both engines having been operated for four hours before the test for purposes of stabilization. Loads were measured by a prony brake checked by indicator cards taken with a DeJuhasz indicator. The above figures not only show the two-cycle engine to be the more efficient from both a thermal and mechanical standpoint, but would also seem to establish the fallacy of the belief that the modern two-cycle engine requires more cooling water per horsepower than does the four-cycle type. Attention is also directed to the similarity of the figures showing heat to exhaust. Exhaust heat was computed from volumetric efficiencies from the indicator cards and the exhaust temperature.

Governing has been greatly improved, this being particularly true of the horizontal two-cycle engine. The function of the governor is to maintain constant speed under changing loads. An engine which slows down with increase of load and speeds up with decrease of load is not well governed. While some gasoline plant operators have at times expressed satisfaction with such performance it should be noted that such operation amounts to nothing more than running on the throttle, a method of operation which can be adopted to any engine of any type. Tests recently made in their plants by one of the larger oil companies revealed that as a general rule the vertical multicylinder engine governed practically perfectly, with the two-cycle horizontals and the four-cycle horizontals following in the order named. The two-cycle units varied their speed about 6 per cent under 50 per cent changes of load, a fact made possible only by intensive study of the problem by the builders during the past few years.

On the whole it may safely be said that engine design has so improved during the past five years that purchase by oil companies of used equipment built prior to 1930 cannot be justified from an economical standpoint. At various meetings in the past, members of this association have asked for lower priced engines, for lighter engines, for higher compression engines, for more economical engines and for auxiliary engines. The engine manufacturers have responded and all the engines asked for are available. Efficient engineers will carefully study the new designs before purchasing obsolete used equipment or electrically-driven auxiliaries.

East Texas Refineries Closing Down as Enforcement Lines Are Tightened

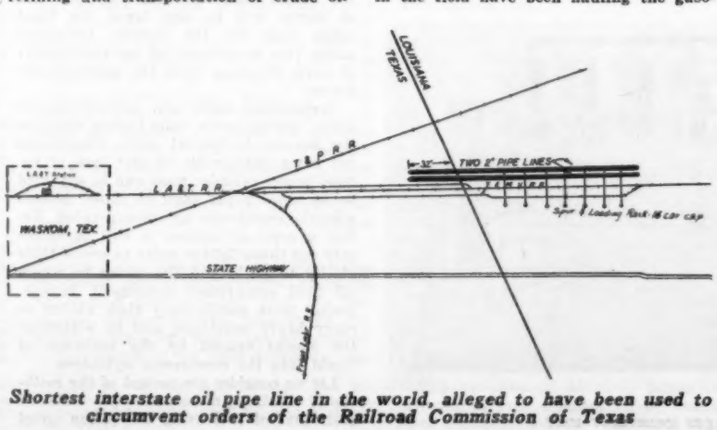
By L. E. BREDBERG

FORT WORTH, Tex., Mar. 4.—Refineries in the East Texas Field were closing down the latter part of last week. Whether it is just psychology or good judgment or the knowledge that the Federal Tender Board would check their last few days' runs and shipments, made after the revised Connally bill became effective and the plants became liable for shipping "hot" products interstate, could not be told. It was probably due to a combination of all three factors. The next weekly field reports are expected to show fewer plants operating than prior to the return of the Federal Tender Board. There were 37 plants operating up to the latter part of the week, although a couple were shut down by the Railroad Commission on March 1 by injunctions obtained by the Texas attorney general's department.

Department of Interior men have been busy since Section 9(c) was invalidated in January, which caused the dismissal of the Federal Tender Board in the field, and that department is said to have an exceptionally good file on overproduction, refining and transportation of crude oil and its products in and from the field. District Attorney Philip H. Mecom has filed suit in the U. S. Court for the Western District of Louisiana at Shreveport, the Griffin and Winters refinery of Gladewater; the Louisiana, Arkansas & Texas Railroad, and Mike Liles of Shreveport, being named defendants. Eighteen carloads of oil or gasoline were seized as evidence. Judge Dawkins set March 8 for arguments on a temporary injunction to prevent movement of the oil.

According to the petition in this case, the oil or gasoline was put into trucks at the Gladewater refinery and transported to within a few inches of the Texas-Louisiana line at Waskom, Tex. There, the petition alleges, the oil was pumped into tank cars of the railroad company and waybilled for delivery at various places outside of Louisiana. The Government further alleged that the refinery has been illegally operated since the middle of January, 1935.

The place and loading point named in the brief of the Government has been a loading point for many tank cars of gasoline. Trucks from various refineries in the field have been hauling the gasoline from the plants to this point on the state line, about 65 to 80 miles distant, depending on what refinery shipped out the products. Thirty-two feet of 2-inch pipe was previously laid across the Texas-Louisiana line and the trucks hauling the gasoline backed up to the Texas end of this line, connected with it and pumped their loads through it into tank cars standing under a loading rack on the Louisiana side. However, the Railroad Commission made an investigation of this line and removed the 32 feet of pipe. This did not discourage the truckers, however, and they still backed up to the state line, never crossing it. A connecting pipe was handed over from the Louisiana side to the trucks on the Texas side. This was connected with the trucks and they then pumped their loads over the line as before until, February 28 when suit was instituted, and trucks stopped moving the products across the line by this method.



Shortest interstate oil pipe line in the world, alleged to have been used to circumvent orders of the Railroad Commission of Texas

John Davis, attorney for the Petroleum Administrative Board, who is the new member of the Federal Tender Board in East Texas

Runs to refineries dropped about 7,000 bbls. per day during the past week. Runs fell to 59,200 bbls. per day from around 66,000 bbls. per day the previous week.

The new Federal Tender Board was in Kilgore ready to resume March 2, but did not get into action until March 4. Norman L. Meyers, chairman of the former board; John Davis, Petroleum Administration Board attorney, and M. S. McCorquodale, making up the new board, which will hold its meetings at Railroad Commission headquarters in that city.

Refined products shipments out of the field for the week were as follows:

Commodity—	No. of tank cars	Gallons
Gasoline	465	3,767,470
Fuel oil	203	1,959,540
Residuum	52	533,070
Casinghead gasoline	147	1,277,130
Distillate	65	531,255
Gas oil	44	355,605
Kerosene	29	232,250
Crude oil	5	42,460
Crude tops	3	24,395
Topped crude	1	8,190
Total cars	1,014	

Refined shipments fell from 1,282 cars last week, a difference of 268 cars. Of the total 962 were shipped out under tenders, 433 going coastwise, 257 within the state and 324 outside of Texas. Only 52 cars went out untendered.

The Department of Interior investigators are checking products that have been falsely sworn as crude or some other products, and some operators and plant owners may find themselves in a tight place as a result of such false swearing. Many tenders for products were applied for at the Railroad Commission offices before the Federal Tender Board goes into action. Some plant operators were apparently hoping they could obtain tenders for products that might not be deemed legal by the Federal board.

RUGGED

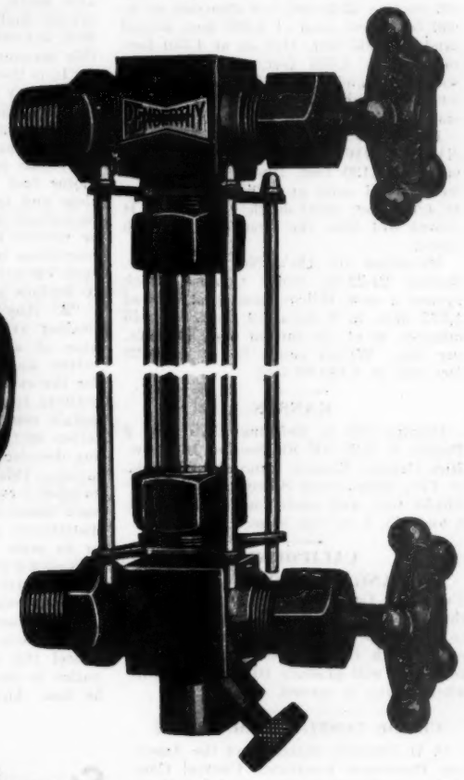
THEY CAN "TAKE IT"

DEPENDABLE operation under the most severe operating conditions is responsible for the universal popularity of these three gages throughout the oil industry. All three can and do "take it"—they are ruggedly built of the highest grade materials by an organization with 48 years experience in the manufacture of quality products. The "All Iron" is made from a modern electric iron alloy, the "Safeguard" from high grade steam metal bronze and the "Navy type" from Navy Bronze Composition M.

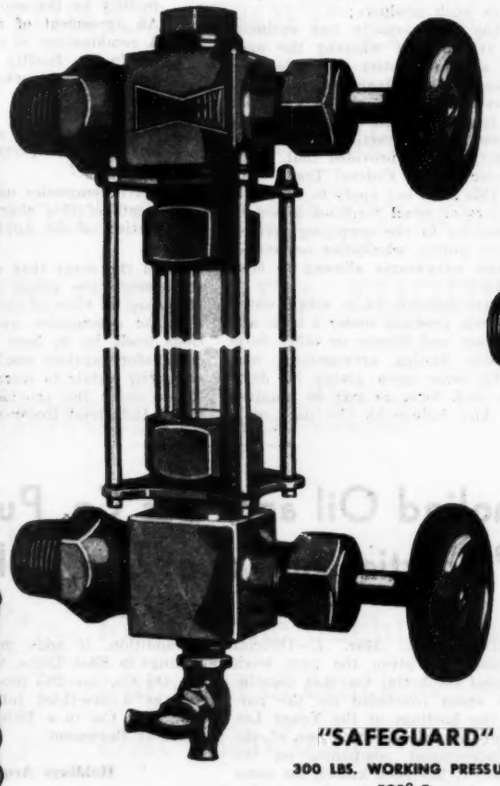
Automatic shut-off is provided on each gage. Upper and lower bodies have ball check valves that seat positively to prevent loss of liquid when glass is broken. The hand operated stop valves are then closed with safety and a new glass inserted.

Every gage is thoroughly tested and carefully inspected at the factory. Write for a copy of the new catalog that gives all the facts.

Supply houses everywhere stock Penberthy Liquid Level Gages.



"ALL IRON"
500 LBS. WORKING PRESSURE
750° F.



"SAFEGUARD"
300 LBS. WORKING PRESSURE
500° F.

"NAVY TYPE"
350 LBS. WORKING PRESSURE
500° F.

PENBERTHY PRODUCTS

PENBERTHY INJECTOR CO.

Manufacturers of Quality Products since 1886

DETROIT, MICHIGAN WINDSOR, ONTARIO

Late Fields

OKLAHOMA

Late near completions in the Fitts Pool in Pontotoc County, Oklahoma, include the following wells: H. L. Blackstock and others' No. 4 Craddock, SE NE SE Section 25-2n-6e, Bromide at 4,050 feet, first sand at 4,170 feet, second sand at 4,230 feet, McLish at 4,310 feet, total depth 4,284 feet. It flowed 432 bbls. the first hour through casing and 156 bbls. the next hour through tubing.

E. H. Moore and others' No. 4 Wirick, NW SW SE Section 29-2-7, had Bromide at 3,840 feet, sands at 3,945 and 4,030 feet, and McLish lime at 4,062 feet and was bottomed at 4,071 feet. It flowed 341 bbls. the first hour, 265 bbls. the second hour, and 244 bbls. the third hour, through casing.

E. H. Moore's No. 1-B Smith, SW SE SE Section 25-2n-6e, had Bromide at 4,000 feet, first sand at 4,205 feet, second sand at 4,245 feet, McLish at 4,310 feet, total depth 4,315 feet. The well was washed in and flowed 590 bbls. in two hours through casing, and 145 bbls. in one hour through tubing.

Blackstock and others' No. 5 Hardin, NW SE NW Section 30-2-7, had Bromide at 4,120 feet, first sand at 4,230 feet, second sand at 4,280 feet, McLish at 4,315 feet, total depth 4,327 feet. It flowed 574 bbls. the first hour through casing.

Marathon Oil Co.'s No. 1, NE cor. Section 24-22-2e, Noble County, which opened a new Wilcox sand pool, flowed 1,172 bbls. in 3 days, 19 hours and 45 minutes, or at the rate of over 300 bbls. per day. Wilcox sands lie at 4,411-23 feet and at 4,449-80 feet.

KANSAS

Empire Oil & Refining Co.'s No. 2 Proffit, C NW NE SE Section 16-20-9w, Rice County, Kansas, pumped 1,673 bbls. in 17½ hours from Siliceous lime at 3,248-58 feet, and made locations for No. 3 and No. 4 on the lease.

CALIFORNIA

LOS ANGELES, Calif., Mar. 4.—Union Oil Co.'s No. 7 Vidor, finished in the Playa Del Rey Field, has built up to 8,400 bbls. daily. It is flowing through casing with tubing closed and field men believe it will produce 10,000 bbls. daily when tubing is opened.

CRUDE TESTING COMMITTEE

O. D. Donnell, chairman of the American Petroleum Institute's Central Committee on Standard Procedure for Measuring, Sampling, and Testing Crude Oil, has appointed George H. Forster, Union Oil Co. of California, Los Angeles, national chairman of the National Sub-Committee of Oil Accounts for 1935.

Other members of the committee appointed by Mr. Donnell include: Eastern Area: A. M. Brereton, Pure Oil Co., Chicago; V. L. Elliott, Atlantic Refining Co., Philadelphia; E. L. Wagon, Consolidated Oil Corp., New York. Oklahoma-Kansas Area: A. L. Carlson, Stanolind Crude Oil Pur. Co., Tulsa; L. S. Collins, Carter Oil Co., Tulsa; R. M. Riggins, Phillips Petroleum Co., Bartlesville; George F. Smith, Continental Oil Co., Ponca City. Texas-Louisiana-Arkansas Area: Gay Carroll, Humble Oil & Refining Co., Houston; R. J. Daniel, Texas Pipe Line Co., Houston; L. S. Sinclair, Magnolia Petroleum Co., Dallas; A. M. Smith, Gulf Production Co., Houston. California Area: J. T. Durkee, General Petroleum Corp. of Calif., Los Angeles; David Heggie, Shell Oil Co., P. L. Lacombe, Associated Oil Co., and B. W. Letcher, Standard Oil Co., of Calif., all of San Francisco.

THOMPSON TO MEYERS

AUSTIN, Tex., Mar. 4.—Ernest O. Thompson, chairman of the Railroad Commission in a welcoming telegram sent to Norman L. Meyers, chairman of the Federal Tender Board at Tyler, said:

"We are glad to welcome the Interstate Tender Board back to Texas. We shall co-operate with your board in every legal way."

Administrator Ickes Issues New Order on Lease and Agency Agreements

WASHINGTON, D. C., Mar. 5.—Administrator Ickes has issued an order on the leasing and agency agreement among marketers but has asked the Federal Trade Commission to pass upon several phases of the original draft of the arguments as they developed through the Planning and Coordination Committee, Petroleum Administrative Board, and administration offices. The order follows:

"This decision is not to be construed as authorizing the writing of any new exclusive contracts for the sale of petroleum products at retail outlets. The validity of any such contract is in considerable doubt. Article 5, Rule 19, as interpreted, shall remain in full force and effect, subject to the terms and effect of this decision.

"It is therefore ordered that:

"1. Any provisions in lease an agency, lease and license or other form of exclusive dealing arrangements requiring the exclusive sale at a retail outlet of any petroleum product other than gasoline or motor fuel are unfair competitive practices and in violation of this code, and no refiner, distributor, wholesaler, jobber or retailer shall attempt to enforce any provisions in existing contracts requiring such exclusive sale or otherwise attempt to exclude such products;

"2. Any provisions in any exclusive dealing arrangement whereby the operator of a retail outlet or outlets receives any price advantage in return for the exclusion of the products of competitors from such outlet or outlets, are unfair competitive practices and in violation of this code, provided that, pending decision by the Federal Trade Commission, this shall not apply to rent paid to operators of retail facilities leased by such operators to the supplying refiner, distributor, jobber, wholesaler or retailer or to price advantages allowed to bona fide agents;

"3. Any operator of a retail outlet for petroleum products under a lease and agency, lease and license or other form of exclusive dealing arrangement may cancel the same upon giving 30 days' notice in such form as may be required by law. Any failure on the part of a refiner, distributor, jobber, wholesaler or retailer to accept such notice as an effective termination of the entire arrangement shall be an unfair competitive practice and in violation of this code;

"4. Article 5, Rule 19 shall remain in full force and effect subject to the terms and effect of this decision;

"5. This decision shall not be construed to affect exclusive dealing arrangements of the character described in Article 5, Rule 20, provided that Rule 20 shall be construed to apply only to cases where the supplier owns the facility in fee."

In a letter Administrator Ickes addressed to Ewin L. Davis, chairman of the Federal Trade Commission he included the following questions regarding further provisions in applying the leasing and agency agreement.

1. Is it a violation of the Clayton Act or the Federal Trade Commission Act for a company engaged in the petroleum industry to secure the exclusive handling of its products at a retail outlet or to discriminate in price in favor of an exclusive dealer?

2. Is any such arrangement affected by
   a. A leasehold interest in the retail facility by the supplying company;
   b. An agreement of agency;
   c. A combination of a leasehold interest in the facility with an agency agreement (1) where the lessor is the operator; (2) where the lessor is not;
   d. A combination of a leasehold interest in the property with a license agreement?

3. Have companies used any types of agreements of this character in concert in violation of the applicable anti-trust laws?

4. In the event that any of these arrangements are prima facie valid, has their use, in view of the proceedings before the commission and the investigations made by it, been sufficiently discriminatory against small enterprise and otherwise unfair to warrant their prohibition under the provisions of the National Industrial Recovery Act?

Stanolind Oil and Gas Co. Purchases Properties of Yount Lee Oil Co.

By NEIL WILLIAMS

HOUSTON, Tex., Mar. 4.—Official confirmation was given the past week by Stanolind Oil & Gas Co. that negotiations are about concluded for the purchase of the holdings of the Yount Lee Oil Co. of Beaumont, Tex., one of the largest independent companies on the Gulf Coast. It has been known for some time that such a deal has been under way and that properties of the latter company were being checked by Stanolind engineers.

Stanolind Oil & Gas Co. has been holding options on the properties and stock of the Yount Lee company and the transaction has reached a stage in which abstracts are now being examined. The purchase price also has been definitely agreed upon. Although the price has not been revealed, it is understood from reliable sources that the owners of the Yount Lee Oil Co. will receive $50,000,000 net after deduction of income taxes, which will be paid by Stanolind. The payment will be made half in cash and the remainder out of oil as produced.

In acquisition of the Yount Lee Oil Co., Stanolind assumes fourth place among the producing companies on the Gulf Coast and takes a step which very definitely establishes the Standard Oil Co. of Indiana as an important factor in this area. In addition, it adds materially to its holdings in East Texas, where the Yount Lee Oil Co. has 265 producing wells, as well as a one-third interest with Sun Pipe Line Co. in a 10-inch line to tidewater at Beaumont.

Holdings Acquired

Holdings being acquired through the acquistion of Yount Lee Oil Co. include, in addition to the East Texas production and the one-third interest in the 10-inch pipe line to the coast, producing properties in 10 fields scattered over the coast, consisting at present of approximately 280 wells with a daily prorated output of 15,000 bbls.; the entire ownership of another field with five wells making 1,000 bbls. daily; extensive undeveloped acreage, both leased and fee ownership; a tank farm at Spindletop with storage facilities of more than 6,000,000 bbls., a terminal on the Neches River at this tank farm capable of loading 10,000 bbls. an hour; a 12-inch pipe line from the High Island Field to Spindletop, a distance of about 50 miles; and other property.

The most important production at present is at High Island, owned practically entirely by Yount Lee Oil Co., where there are 41 producing wells with a restricted output of 7,650 bbls. These wells are estimated good for 100,000 bbls. daily potential. The field, a salt dome, is only partially developed. Other fields in which the company has producing properties include Barbers Hill, Spindletop, Hull, Liberty, Sour Lake, all in Texas; and Jennings, East Hackberry, Old Hackberry and Welsh in Louisiana. The company owns the fee of the Sweet Lake Field, Cameron Parish, La., being developed by Pure Oil Co. None of the fields is fully developed.

Company Organized in 1913

Yount Lee Oil Co. has been very closely and actively linked with coastal development since 1913. It was in this year, that the company came into existence, being organized at Sour Lake by the late M. Frank Yount, T. F. Rothwell, who, following the death a couple of years ago of Mr. Yount, became president of the company, with J. H. Phelan. Originally known as the Yount-Rothwell Oil Co., it carried on operations at Sour Lake under that name until 1915, when the company was reorganized as the Yount Lee Oil Co. with a capitalization of $50,000.

Although there was no change in the management, in the new organization were the interests of the wealthy Lee family, represented by T. P. Lee, and those of the Woodward family, represented by E. F. Woodward. Mr. Lee is the father-in-law of Mr. Rothwell. Both Mr. Lee and Mr. Woodward, who have been prominent independent oil men in other ways, reside at Houston.

After this reorganization, the company extended its operations to Hull, where in 1922 it got its first really important production, and with an increase in capitalization to $2,000,000, it moved its headquarters to Beaumont and began to acquire holdings extensively over the Gulf Coast. It came into particular prominence late in 1925 when it started the second Spindletop oil boom by the opening of deep sand production on that dome. Since then the company has grown rapidly in size and importance.

The present ownership of the Yount Lee Oil Co. is divided as follows: the Yount family, one-third; the Lee family one-fourth; the Woodward family, one-fourth, and the Phelan family, one-sixth. The officers of the company are Mr. Rothwell, chairman of the board and president; Mr. Phelan, vice president; F. E. Thomas, secretary.

Stanolind has maintained only a land and geological department on the Gulf Coast, this being headquartered at Houston. The main headquarters of the company are in Tulsa.

Administrator's Report on Crude Oil Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended February 23 totaled 321,367,000 bbls., according to data compiled by the Bureau of Mines, Department of the Interior, for Petroleum Administrator Harold L. Ickes. In comparison with the revised figure for the previous week, this total represents a net decline of 856,000 bbls. and comprises decreases of 545,000 and 311,000 bbls. in stocks of domestic and foreign petroleum, respectively.

STOCKS OF CRUDE PETROLEUM, FEBRUARY 16 AND FEBRUARY 23, 1935
(Barrels of 42 gallons)

Grade of crude oil—	Feb. 16	Feb. 23
Pennsylvania Grade	4,419,000	4,354,000
Other Appalachian	970,000	981,000
Lima-N.E. Indiana-Michigan	1,224,000	1,246,000
Illinois-S.W. Indiana	11,456,000	11,515,000
N. Louisiana and Arkansas	9,628,000	9,722,000
West Texas and S.E. New Mexico	31,296,000	31,016,000
East Texas	29,212,000	29,608,000
Other Mid-Continent	148,642,000	148,248,000
Gulf Coast	19,774,000	19,446,000
Rocky Mountain	27,542,000	27,625,000
California	34,417,000	34,280,000
Domestic crude	318,580,000	318,035,000
Foreign crude	*3,643,000	3,332,000
Total†	322,223,000	321,367,000

*Revised.

†Represents approximately 93 per cent of total stocks in the United States, exclusive of producers' stocks.

Gasoline consumption going up

Crude stocks going down

Refiners anxious about new sources of future supply

Running more crude is one way to make more gasoline

More Dubbscracking is *the* way to make more gasoline from the crude you are running now

And better gasoline

If the chemical cop is not working for you he ought to be He keeps gum out of cracked gasoline at less cost than other treating methods — and saves antiknock value

Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

THE OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published Weekly By

THE PETROLEUM PUBLISHING COMPANY

114-16 West Second Street, Tulsa, Oklahoma

P. C. LAUINGER, President and Gen. Mgr.
ANDREW M. ROWLEY, Editor
W. T. ANDERSON, Managing Editor
JAMES McINTYRE, Consulting Editor
C. O. WILLSON, Refinery Editor
L. G. E. BIGNELL, Petroleum Engr. Editor

Established 1910 by PATRICK C. BOYLE

E. KLAPPENBACH, Advertising Manager
C. K. FRANCIS, Ph.D., Technical Editor
W. T. ZIEGENHAIN, Associate Editor
THOMAS F. SMILEY, Associate Editor
M. F. BALDWIN, Circulation Manager
S. H. ROURKE, Business Manager

Branch Editorial Offices

CANADA, Victor Lauriston
DENVER, Tolbert R. Ingram
FT. WORTH, L. E. Bredberg
HOUSTON, Neil Williams
CHICAGO
LOS ANGELES, L. P. Steckman
NEW YORK, C. O. Willson
MICHIGAN, Paul A. Elliott
OIL CITY, Robert C. Conine
MINDEN, La., J. R. Crumpton
TOLEDO, George A. Whitney
WASHINGTON, Hugh D. Mallon
PITTSBURGH

Branch Advertising Offices

NEW YORK CITY, C. L. Cain
CHICAGO, C. R. Farmer
CLEVELAND, Howard Markt
HOUSTON, Paul T. Putnam
LOS ANGELES, J. H. Tinkham

(For representatives' complete addresses see contents page)

Member, Audit Bureau of Circulations

Texas Aroused

Some of the tricks used in East Texas to avoid the law have been so brazenly plain it is difficult to understand how anyone could expect to get by with them under any real attempt to enforce the regulations.

But apparently the days for that sort of thing are numbered. With the restoration of the Federal Tender Board under the revised Connally law and the public pledges of mutual working by the Federal and State authorities the flood of contraband oil should be reduced to a trickle.

The regulations approved by President Roosevelt for the operations of the Federal Tender Board are so specific and complete as seemingly to cover every possible form of evasion. The Petroleum Administration has profited by the experience of the former tender board in drafting these regulations to overcome previous defects or loopholes. However effective the former Federal board was it should now be much more so when fortified by a stronger law.

Added to this there is the increased activity shown by the State Railroad Commission and the attorney general of Texas in pressing for enforcement. The action of the Texas legislature in passing the bill requiring notice to the Railroad Commission of injunction proceedings shows a distinctly friendly trend at Austin towards effective regulation.

In fact, on the whole there has been a marked stiffening of sentiment in Texas against selfish lawlessness in East Texas as its cost to the State has been developed.

The continuous challenge to the authority of the State could not go on indefinitely. The almost childlishly simple tricks being used to defeat the law were bringing ridicule upon Texas. The State possessed powers in half a dozen departments that could be employed to checkmate the evasionists. The hole gnawed in one law could be plugged with authority under other statutes, such as truck regulation and taxing power. There was a call for the State to show resourcefulness and ingenuity in trapping the lawbreakers equal to that exhibited by the violators in finding tricks for evasion.

That spirit apparently has now been aroused. There is evident a disposition to move against the outlaws along the entire front. The return of the Federal Tender Board will permit the State commission to devote its undivided attention to intrastate movement and between them they should be able to cope with the problem.

Vigorous Protests

The vigorous protests against the new Thomas bill wired to Washington by Governor Allred, Attorney General McCraw and Chairman Thompson of the Texas Railroad Commission will be welcomed by the oil industry.

Addressed personally to the Texas delegation, including Vice-President Garner, Senators Connally and Sheppard and Chairman Rayburn of the House Committee on Interstate and Foreign Commerce, reputedly so influential in blocking the Federal control bill in the last session and in forcing action on the Connally bill at the present, these demands for a hearing in opposition to any such Federal oil legislation at this time cannot be ignored, especially since, as the governor truly says, they "represent the opinion of the vast majority of the people of Texas and 90 per cent of the industry."

It is significant that Chairman Thompson emphasizes the fact nine oil producing states have entered into a solemn agreement to pass and enforce adequate state laws to effect true conservation and prevent waste of oil and gas. This should be a sufficient answer to doubters who have been asserting Texas would never enter into an interstate compact.

The situation, in fact, is very tersely summarized by Colonel Thompson: "The states are conscientiously doing their part. Congress has done its part. No Federal control bill should be considered. There is no need for it."

The interstate compact leaves the states and the industry in control of their legitimate spheres. The Thomas bill aims at complete Federal control authorizing a Federal Petroleum Board of five members, of which the secretary of the interior would be chairman, to determine and enforce quotas in any or every pool, field; lease, property, storage unit or other source of supply within a state.

Whatever basis in lack of state action there was urged for the less drastic bill defeated in the previous congress has certainly since been removed. Effective co-operation among the states and the assistance rendered by the restoration of the Federal Tender Board offers all the machinery that should be needed to stabilize the industry.

For Congress to scrap all this constructive accomplishment without giving time for testing its worth would be inconceivably absurd. Experience with the Petroleum Administrative Board has developed no particular value in such a body. Not even the assistance of a Planning and Co-ordinating Committee could make it effective.

In addition to the protests from Texas that there is no need for further Federal control legislation now the attention of Congress might be directed to the observation of Administrator Ickes that the new Federal Tender Board "expects to maintain close co-operation with Texas state officials in mutually working to prevent illegal production and shipments in interstate commerce." Also to the public pledge of co-operation which Chairman Thompson has given to the Federal Tender Body.

Let us try this through before rushing off at another tangent.

Divergent Policies

Oil companies have a direct interest in the proposed legislation affecting utility holding companies. These companies, in the course of their business, have engaged in the sale and distribution of natural gas through subsidiary organizations. The Rayburn bill to eliminate all holding companies by 1940 should be revised to take the position of these oil companies into consideration.

These oil companies have made large investments in great transportation systems to provide markets for their natural gas production, a natural and legitimate evolution of their operations.

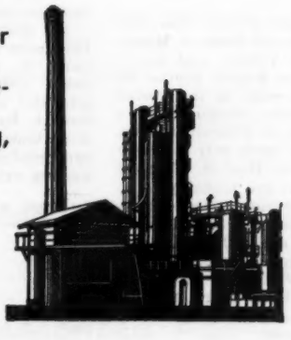
It would be devastating contradiction to penalize oil companies for developing a demand for their natural gas at the same time the Public Works Administrator is considering a $50,000,000 loan of government funds to build a pipe line for the same purpose.

Kellogg now offers processes for the manufacture of LUBRICATING OILS

The M. W. Kellogg Company is exclusive licensing and construction agent for a number of new processes for the manufacture of lubricating oils to meet present day requirments. These processes include:

- **Propane Dewaxing**
- **Propane Deresinating and Deasphalting**
- **Acid Treatment in Propane**
- **Phenol or Cresylic Acid Extraction in the presence of Propane**
- **Phenol Extraction (Single Solvent)**

The M. W. Kellogg Company is maintaining in these lubricating oil processes the same standards established for their cracking units, and is offering the refiner the benefits of the latest research developments in processing, engineering and construction.



KELLOGG

THE M. W. KELLOGG COMPANY · 225 BROADWAY, NEW YORK

Los Angeles: 1031 South Broadway • San Francisco: 200 Bush Street • Tulsa: Philtower Building

Kellogg Products include: Cross, Holmes-Manley, de Florez and Tube and Tank Cracking Units. Absorption Plants and Pipe Stills. Deasphalting, Dewaxing, Solvent Extraction and Acid Treating Plants. de Florez Temperature Control. Pressure Vessels for the Power, Refinery and Chemical Industries. Power Plant and Industrial Piping. Pacific Hot Oil Pumps. Radial Brick Chimneys. Plastic Refractories.

Licensing Agent for Gasoline Products Company, Inc. Licenses granted under United States and Foreign Patents for: Cross · de Florez · Holmes-Manley · Tube and Tank Cracking Processes and Combination Cracking Units · · · · European Representatives: Compagnie Technique des Petroles · 134 Boulevard Haussman, Paris, France · · · · · ·

NEWS FROM FOREIGN LANDS

ITALY

The year 1934 saw Italy being subjected to a very thorough and intensive search for oil, both by the government-subsidized company, the A.G.I.P., as well as by the few smaller operating companies; most of the exploration work, approximately two-thirds, has been carried out in the Province of Emilia (North Italy).

The A.G.I.P. has been particularly active in the Emiliar district and has sunk several rotary holes between Voghera and Ferrara in structures located by geophysical means in the Po Valley. Only insignificant amounts of oil have shown up to date but gas has been found in fair quantities and apparently the company is not yet prepared to abandon its search in this part of the country. In Central Italy, the same company has put down four tests with cable tools; two were "dry holes" and the other two found only traces of oil. The A.G.I.P. also sank two wells in southern Italy and it is believed that in these the indications were sufficiently encouraging for the exploration work to be continued. No serious drilling has yet been done in Sicily. The annual subsidy granted to the A.G.I.P. by the government for its five-year plan has been very considerably reduced for 1935 and this may interfere with the completion of the coming year's program in all its details.

The Societa Petrolifera Italiana, which is the chief producing company, has continued the development of its two fields, Salsomaggiore and Vallezza, and has intensified its program of exploration. Rotary machinery has been introduced and is undergoing a thorough trial, and prospects of finding new pools at greater depths are considered good. The charcoal absorption plant at Vallezza has operated very satisfactorily throughout the year and has produced nearly 3,000 bbls. of high grade gasoline. Besides th exploration well at Rile dell' Olio, still drilling, another wildcat has been started at Torre-di-Traversetolo. All operations of this company are confined to the district of Emilia.

The Societa Petroli d'Italia has continued to operate the old fields of Montechino, Gratera and Velleja, and has a well now exploring at greater depths. Of the two exploration wells in the Torino district, one has been abandoned at a shallow depth owing to difficult drilling, while the second has made only moderate progress. The fields of Ripi, S. Giovanni Incarico and Ceccano are probably to be closed down. The government's recent action in reducing the premium on crude produced from the national subsoil has very adversely affected the profits of private companies, and it is probably due to this fact that it is no longer possible to operate these fields in Central Italy on an economical basis.

Before A.I.M.E., New York. Paper secured through W. P. Haynes, member A.I.M.E., London, England.

IRAQ

The British Oil Development Co., Ltd., through the operating subsidiary, the Mosul Oil Fields, Ltd., now has additional drilling rigs in operation to test structures located within its large concessions from the Iraq government. The company is hopeful of definitely locating additional production during 1935 looking toward the construction of a pipe line with Alexandretta the proposed terminal. Under the terms of its concession the company is obligated to build a pipe line when production is obtained amounting to a minimum of 1,000,000 tons yearly, or approximately 20,000 bbls. daily.

The company's concession covers approximately 200 square miles on the west bank of Tigris. Some oil has been discovered but for the most part it has been low gravity. A substantial quantity of this low gravity crude is available in the Najmah area.

Considerable gas has been discovered in what is known as the Shargat district. Within this district a recent report showed that two tests were drilling at Qaiyara, three at Najmah, two at Jawan and one each at Ain Sadid and Hujara. Those in charge of these operations are said to be confident that light crudes in large quantities will be discovered on one or more of the structures the locations of which have been known for some time.

POLAND

By CHARLES BOHDANOWICZ
Warsaw, Poland*

As in preceding years, the most intensive drilling activity during 1934 took place in the old fields of the western part of the Polish Carpathian petroleum province (district of Jaslo). Most of the new wells, not only of the deepened old wells, are in the Jaslo district and in the fields outside Boryslaw-Tustanowice-Mraznica. The number of new wells almost reached the level of 1930 in Jaslo, but in all the other districts there was a marked decrease.

The number of producing wells has varied very little since 1930, but in the Boryslaw fields it somewhat increased in 1933 and 1934 owing to a number of wells having been deepened or reconstructed. In spite of this increase of the number of producing wells, production could not be maintained at the same level in the fields of Boryslaw and Bitkow (district of Stanislawow).

A new company, the "Polish Association of Petroleum Engineers," is actively undertaking new researches in the Boryslaw area in order to rationalize exploitation.

The principal events in Poland during 1934 were the development of gas operations in the Daszawa-Gelsendorf gas fields (Stryj district, Sub-Carpathian province) and in two fields of the Jaslo district. By the end of 1933 geophysical work undertaken by the "Pioneer" company confirmed the probability of a northwestern extension of the structure of the Daszawa gas field. These indications were utilized by two companies (Malopolska and Polmin), which have leased considerable areas. In 1934 three prospecting wells proved that an area of not less than 200,000 acres is probably gas bearing in Miocene formations.

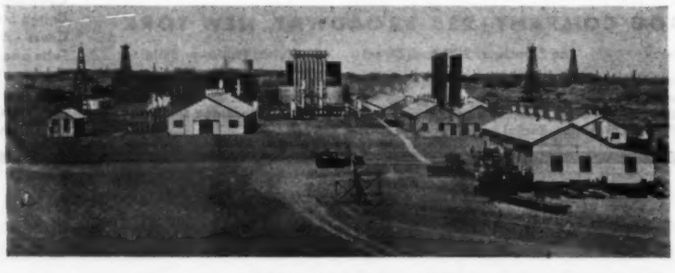
In the Jaslo district well, No. 5 Roztoki, on the anticlinal fold of Jaszczew-Potok, yielded from a depth of 1,024 meters in Eocene beds a flow of gas up to 800 cubic meters per minute (open flow). No. 3 Roztoki, which from a depth of 1,001 meters, gave an initial gas production of 120 cubic meters per minute, had already been completed in 1933. Another well at Gorki (Strachocina Field), on the anticlinal fold of Turzepole, gave a flow of gas of 120 cubic meters per minute from a depth of 1,218 meters in Cretaceous beds (open flow). The closed-in pressure in this well is approximately 92 atmosphere. Each of these wells increased the proven gas field area by at least 60 acres. All these wells belong to the state enterprise "Polmin," and the gas is being carried through the Jaslo-Krosno-Moscice gas line to the large state plant of nitrogen products near the city of Tarnow.

The extension of the area of the gas fields has not yet had any influence on the increase of gas and gasoline production. The Boryslaw-Tustanowice-Mraznica fields are the main producers of gasoline, since they yield the largest amounts of casinghead gas. In 1934, gas production was as follows: Jasbo, 111,200,000 cubic meters; Boryslaw, 303,500,000; Stanislawow, 43,300,000; total, 458,000,000 cubic meters. Gasoline production was: Jaslo, 4,382,000 kilograms; Drohobycz district, 33,123,303; Stanislawow, 2,961,817; total, 40,467,120 kilograms.

*Before A.I.M.E, New York.

TOTAL OIL PRODUCTION, IN CARS (10,000 KG.)

Year—	Jaslo	Outside Boryslaw	Boryslaw fields	Stanislawow	Total
1934	9,953	9,141	30,426	3,268	52,788
1933	9,646	9,588	32,514	3,320	55,067
1932	9,582	9,043	33,029	4,014	55,668
1931	9,765	9,491	39,070	4,702	63,028
1930	8,535	8,561	44,334	4,847	66,277



Natural gasoline plant of the International Petroleum Co. Ltd., at Lomitos, Negritos, in Peru

VENEZUELA

Crude oil production in Venezuela totaled 12,559,841 bbls. in January. This daily average of 405,156 bbls. represents a gain of 54,886 bbls., or 15.6 per cent over the daily average for January, 1934.

Among the companies, the Lago Petroleum Corp. and the Creole Petroleum Corp., both Standard of New Jersey units, showed large gains in January over January, 1934. Venezuelan Oil Concessions, Ltd., and Caribbean Petroleum Co. had small gains over 1934. The remaining companies operating showed losses.

In the fields a large part of the gain for the entire country is accounted for by the increased output of pools which constitute the Lagunillas area. Quirequire in eastern Venezuela had a gain of more than 50 per cent and the production of Mene Grande was also ahead of January, 1934. The January output of the remaining fields was less in January, 1935, than the same month of 1934.

The following table gives the production by companies and fields:

PRODUCTION BY COMPANIES

	Barrels	
	Jan., 1935	Jan., 1934
Lago Pet. Corp.	4,182,232	3,281,200
Venezuelan Oil Concessions, Ltd.	3,057,468	2,776,600
Creole Pet. Corp.	2,092,351	1,521,700
Venezuelan Gulf Oil Co.	1,288,000	1,327,000
Caribbean Pet. Co.	1,382,600	1,239,600
Colon Oil Corp.	476,190	564,200
British Controlled Oilfields, Ltd.	80,000	98,200
Total	12,559,841	10,858,000
Daily average	405,156	350,270

PRODUCTION BY FIELDS

Lagunillas	7,043,637	5,585,400
La Rosa-Ambrosio	1,660,302	1,964,500
Mene Grande	1,382,600	1,239,600
Quirequire	1,491,592	846,300
Tarra	476,190	564,300
Cumarebo	278,952	404,000
Concepcion	129,642	183,200
El Mene	80,000	98,200
La Paz	16,926	23,000
Total	12,559,841	10,858,000

MEXICO

The following table gives values and production taxes effective in Mexico for February (calculated in silver at exchange of 3.6):

VALUES

	Silver pesos per cubic meter	U.S. currency
Fuel oil	27.17	$1.20 bbl.
Gasoline	71.42	.0751 gal.
Kerosene	58.30	.0613 gal.

PRODUCTION TAXES

	Tax per c.m.-pesos	Tax in U.S. currency
Crude (sp. gr. 0.93— Be. 20.38)	3.140	$0.13866 bbl.
Crude (sp. gr. 0.96— Be. 15.68) or heavier	1.907	.08422 bbl.
Fuel oil (sp. gr. 0.95— Be. 17.21)	2.934	.12957 bbl.
Gasoline (crude)	2.857	.00300 gal.
Gasoline (refined)	1.428	.00150 gal.
Kerosene (crude)	3.498	.00368 gal.
Kerosene (refined)	1.749	.00184 gal.

The production tax on fuel oil will vary approximately .01062 ber barrel for each degree of specific gravity above (deduct) or below (add) 0.95 specific gravity.

The production tax on light crude will vary approximately .01137 per barrel for each degree of specific gravity above (deduct) or below (add) 0.93 specific gravity.

EXPORT TAXES

Note: As export taxes are payable in silver at par, to make calculations in U. S. currency, take figures given below, multiply them by 2 and divide by rate of exchange at time of payment.

	U.S. currency ($1 for 2 pesos)
Crude (sp. gr. 0.93— Be. 20.38)	$0.07949 bbl.
Crude (sp. gr. 0.96— Be. 15.68) or heavier	.04928 bbl.
Fuel oil (sp. gr. 0.95— Be. 17.21)	.05962 bbl.
Gasoline (crude)	.00472 gal.
Gasoline (refined)	.00189 gal.
Kerosene (crude)	.00151 gal.
Kerosene (refined)	.00057 gal.

COLOMBIA-PERU

Crude oil production in Colombia totaled 1,653,647 bbls. in January, or a daily average of 53,343 bbls. This is a gain of 63 per cent over the production of 1,012,780 bbls., or 32,700 bbls. daily in January, 1934.

Crude oil production in Peru in January totaled 1,248,465 bbls., or 40,273 bbls. daily. This production is 3.1 per cent greater than the 1,188,540-bbl. total, or 38,340 bbls. daily in January, 1934.

The RESPONSIBILITY IS OURS for all Genuine TRANSIT PARTS

IT costs us real money to maintain stocks of repair parts for Transit Pumps at our various Agents and Warehouses. We do this solely to enable customers to secure genuine parts promptly.

Bogus parts may appear O. K. on the surface, but there is always the question whether they are made of good material, and if they will fit accurately. The latter is particularly true in bogus valve seats. Valve seats, as you know, must fit very accurately.

The use of bogus piston rods always proves uneconomical. The skill, the careful selection of the material, the finish, and the accuracy,— all of which give TRANSIT PUMPS distinction,— are not duplicated by the counterfeiter. He only duplicates the lesser details, the shape and the shell.

Insist on genuine TRANSIT replacement parts,— to be doubly sure order from your nearest authorized Agent, as listed below, or from a district office.

NATIONAL TRANSIT PUMP AND MACHINE CO.

OIL CITY, PENNSYLVANIA

NEW YORK - PHILADELPHIA - CHICAGO - CLEVELAND - PITTSBURGH - LOS ANGELES - HOUSTON - TULSA

The Republic Supply Co., of Calif.
2122 East Seventh Street
Los Angeles, California

F. C. Richmond Machy. Co.
320-326 West Second South St.
Salt Lake City, Utah

Reeves & Skinner Machy. Co.
2211 Olive Street
St. Louis, Missouri

Pratt-Gilbert Co.
Phoenix, Arizona

Frick-Reid Supply Corp.
108 N. Trenton Ave.
Tulsa, Oklahoma

Improved Outlook for Gasoline in Group 3 Area Creates Rising Prices and Active Market

By T. F. SMILEY

Executing a smart right-about, tank car gasoline prices shot upward this week in the Oklahoma (Group 3) territory. Several factors contributed to the improved conditions, but the principal one perhaps was the realization by northern buyers that the former supply of underpriced motor fuel from East Texas, for the time being at least, was being cut off. That turned inquiries to Oklahoma refiners, with a resultant brisk pickup and active jobber demand.

Credit for sharply reducing the volume of East Texas gasoline going to northern markets and thus stimulating trade for Oklahoma refiners goes largely to the recently organized Independent Refiners Marketing Corp., which has set out to have virtually all legal gasoline produced in East Texas moved to the Gulf, mainly for coastwise shipment under arrangements for its absorption by major companies, and to reinstatement last Monday of the Federal Tender Board in East Texas, along with prospects of a sound buying program.

Distress Material Out of the Way

Accumulations of semi-distress material in the hands of Oklahoma refiners who do not have their own retail outlets were reported to have been sold at 3 cents early last week and the week before. With these stocks out of the way, however, it developed that the sources of cheap gasoline in Oklahoma, as well as in East Texas, were growing scarce. The East Texas product already was commanding a premium and North Texas refiners were steadfastly refusing to make any price concessions. The stronger market then set in.

One Oklahoma refiner who found himself in need of cash before the rise in Group 3 quotations began and who had his storage tanks full was so confident better days were at hand that he refused to sell at the distress prices offered. Instead he applied at his bank for a loan and got it, the stored gasoline being accepted as collateral. The wisdom of his action soon became apparent.

Reinstatement last Monday of the Federal Tender Board in the East Texas Field exercised a steadying effect on refined product prices.

Much illicit gasoline is reported still to be running out of East Texas by truck to consuming areas in the state, but steps have been taken toward putting an end to this method of circumventing the law.

Waiting for Purchasing Program

Until a thoroughgoing curb has been put on hot-oil operations and the total production of gasoline has been brought well in line with consumptive demand, however, it is realized that complete absorption of the East Texas output may place upon the majors a larger job than they can take care of, so a high degree of interest was manifested this week in developments concerning a purchasing program of national scope which it is hoped to have in operation at an early date.

As formulated originally and as actually put into practice in a preliminary way early this year, the purchasing program contemplated the absorption by leading integrated companies of excess gasoline stocks accumulated by independent refiners in North Texas, Oklahoma and Kansas. The plan, which was beginning to exercise a beneficial effect, was suspended upon reports that court decisions handed down January 19 in injunction suits would throw immense stocks of crude and refined products upon the market. Since then many meetings have been held with a view of reviving the plan in a more definite form and with a broadened range, so that it will relieve any threatening situation arising in East Texas as well as other areas. Persons active in putting the program to work said this week they expected complete plans would be ready for announcement within a few days, following a meeting in St. Louis, Mo.

Inauguration of trading Tuesday of this week in gasoline and crude oil futures on the Commodity Exchange was watched with interest by the trade.

Naturals Still Dropping

Natural gasoline was still headed downward. The 26-70 grade was obtainable in the spot market for a quarter-cent less than a week ago, though the stabilized quotations showed little change. The weakness in the unstabilized material as compared with the stabilized was accounted for by the fact that many manufacturers are not equipped to produce anything but 26-70, with consequent overproduction of that grade, while manufacturers of the stabilized material were exhibiting no anxiety to sell.

The burning oils, which showed a bit of liveliness last week when the blizzard which swept the Northwest created a sudden demand, were settling down again this week, but promises of further cold kept prices from changing.

The heavy fuels were in little demand, but prices managed to hold.

Kerosene was steady, many refiners who had been making distillate were reported to be cutting kerosene instead, in preparation for the expected rise in agricultural demand.

The lubricant group maintained its steady tone. Wax was weak, with no price change.

Refined Oil Market Barometer

Reinstatement of the Federal Tender Board in East Texas and prospects of a gasoline purchasing program designed to remove any accumulations of surplus stocks, along with the nearness of weather conditions favorable to increased consumption, injected a more cheerful spirit into the motor fuel market. Compensating for the waning demand for furnace oils is increasing strength in kerosene in most areas. Naturals still going down.

Mid-Continent.—Gasoline strong. Naturals weak. Kerosene steady. Furnace oils held up by belated blizzards.

East Coast.—Gasoline and kerosene lack vigor. Little change in heavy fuels, lubricants and wax.

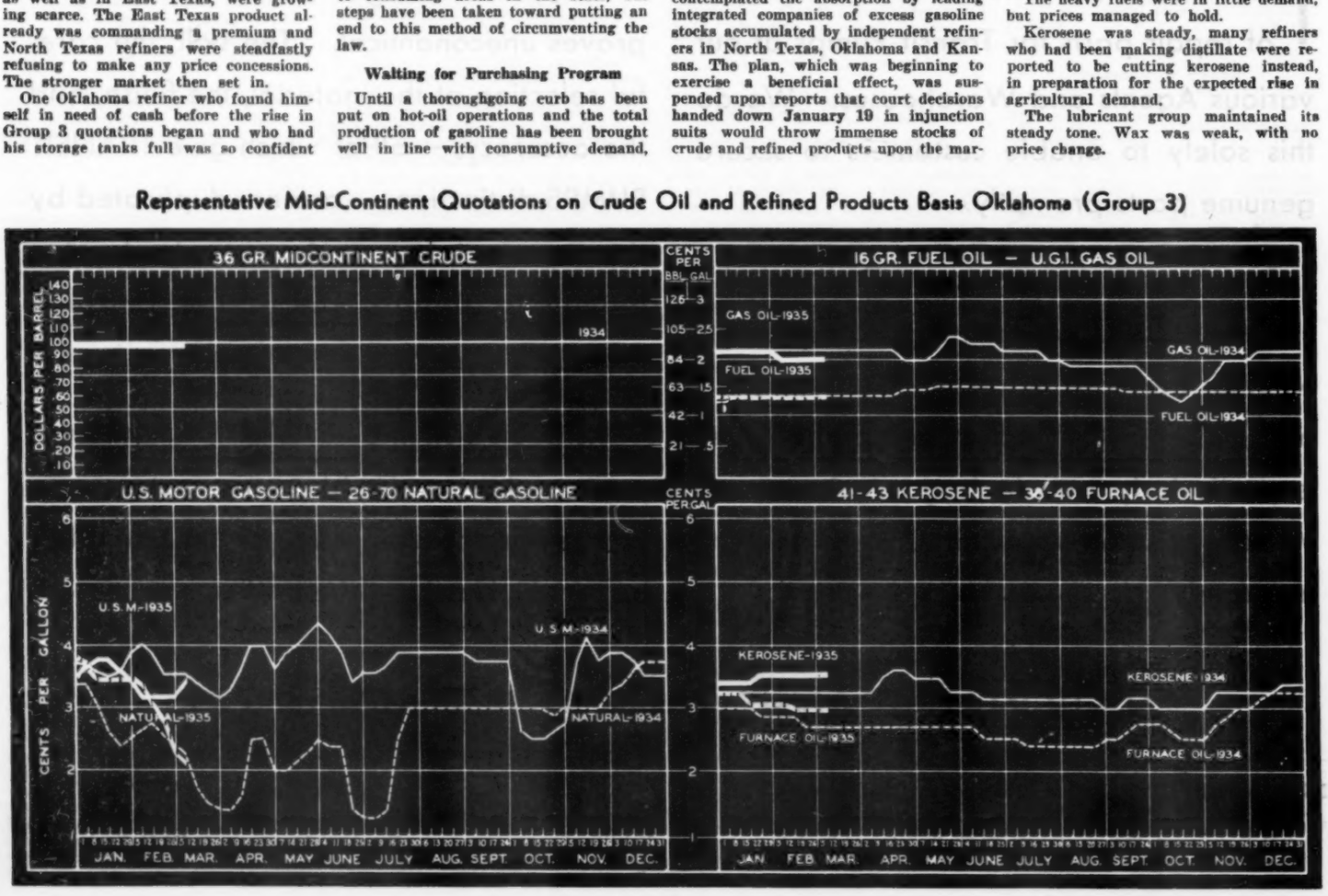
Gulf Coast.—Gasoline firmer.

Pennsylvania.—Gasoline, kerosene and fuel oil stronger. Improvement in bright and steam-refined stocks in sight.

California.—Gasoline and kerosene fractionally lower. Natural weak. Smudging oil in good demand.

Chicago.—Gasoline steadier. Kerosene firm. Heating oils easy.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Recent Lowering of Prices in the Atlantic Coast Area Caused No Increase in Retail Demand

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Mar. 4.—No improvement was apparent in refinery markets for several products which have been weak in this territory over the past two weeks. Price reductions in gasoline, kerosene and some grades of fuels which were made effective 10 days ago have not served to stimulate demand or end a period of price cutting. While practically all of the major companies are maintaining the same posted schedules on tank car and small barge shipments announced at that time there continues to be some sales from one-eighth to one-fourth cent under these quotations.

The Standard Oil Co. of New Jersey and other major companies announced the latter part of last week that the tank car prices in the harbor area for New York delivery would apply to northern New Jersey deliveries. This meant a reduction of one-half cent per gallon in the New Jersey prices. The quotations at Bayonne, N. J., refineries have been from one-fourth to one-half cent higher than the New York prices since the settlement of the northern New Jersey price war of last fall. The price was advanced at that time in an effort to provide a sound tank car structure at refineries and water terminals to support a normal retail price structure. This differential in the harbor prices was incongruous from several angles and it has been evident that it could not be maintained indefinitely.

The prices now generally quoted for both New York City and northern New Jersey delivery are 5¼ cents for low octane, 5½ cents for middle octane and 5¾ cents for 65 octane and above. All these prices are one-fourth cent lower for small barge delivery in the harbor area. It is claimed that a few sales have been made under these quotations. Where the jobber is guaranteed a 6-cent margin under the service station price, the net back to the terminals under the present 15-cent service station schedule in New York City is around 5 cents, exclusive of taxes.

During the week there were further reductions in tank car and service station prices at Albany and other up-state points. At this writing practically all the principal consuming centers are from 1 to 4 cents a gallon under normal with the Buffalo price of 12 cents including 4-cent federal and state taxes the outstanding weak point.

Special efforts have been made here over the past week to bring a return to normal posted dealer and service station schedules and there have been daily predictions of success within the next 24 hours. The main trouble seems to be the fact that there are several cargoes of gasoline at the Gulf with top heavy storage in the hands of independents along the Atlantic Seaboard. This points to a continued weak tank car market and in the face of this situation it has been difficult to obtain support for a general advance in service station prices although present schedules represent substantial losses to a majority of operators.

Watch Federal Control

So far as the Gulf tanker and the local tank car and small barge prices are concerned most of those in touch with the market are now looking to the new federal act controlling interstate shipments of hot oil as a cure-all. Some of the weakness at the Gulf and here is unquestionably due to the failure to keep Texas production within the allowables coupled with the steady increase in hot oil operations. It is hoped that the Federal Tender Board will reduce these hot oil operations to a minimum. Some profess to have information to the effect that if this is done, certain large refiners will step into the market and take off the distress tanker and tank car material now being forced on the market to the detriment of all price schedules.

This same plan was tried out last year with results that were not satisfactory to the major buyers. It is argued now that conditions have changed over a year ago and it is contended that a buying program backed with enforcement of state proration laws, would tend to strengthen and stabilize the present gasoline market.

Gain in Gasoline Stocks

Certain observers are also contending that there is need of a curtailment of refinery operations over the next 60 days to prevent further accumulations of gasoline stocks. They cite the weekly reports of the American Petroleum Institute in support of their contention. Inventories have been accumulating steadily over the past three months. A gain in stocks is to be expected over this period but it is claimed that increases has been too rapid in recent weeks and if continued to late spring will result in an unsatisfactory summer market.

The low point in gasoline stocks last year for the entire United States according to the weekly A.P.I. reports was on November 17 when the inventories of finished gasoline at refineries, bulk terminals and pipe lines totaled 39,892,000 bbls. These stocks were exceptionally low and brought complaints from many refiners that their supplies on hand were less than their working requirements. This situation had been brought about by adhering to the operating schedules established for the companies by the refining division of the P.A.B. at Washington, D. C. The latter to take care of this situation were more liberal than had been expected in refinery operating schedules for the winter month. The question now arises as to whether or not these operating schedules for December, January and February were for the best interests of the refiners themselves. The following table shows the gasoline stocks of finished gasoline at refineries, bulk terminals and pipe lines on November 17, 1934, the low point, and February 23, the latest A.P.I. report available at this writing.

STOCKS OF FINISHED GASOLINE
(Data in barrels)

Region—	Feb. 23	Nov. 17, 1934	Feb. 23 gain	Pct. gain
East Coast	16,539,000	11,546,000	4,993,000	43.2
Appalachian	3,156,000	1,519,000	637,000	42.0
Indiana, Illinois, Kentucky	9,400,000	6,127,000	3,273,000	53.4
Oklahoma, Kansas, Missouri	5,287,000	3,505,000	1,783,000	50.8
Inland Texas	1,391,000	1,054,000	337,000	32.0
Texas Gulf	6,184,000	4,192,000	1,992,000	47.5
Louisiana Gulf	1,562,000	1,058,000	504,000	47.6
North Louisiana-Arkansas	253,000	165,000	88,000	53.3
Rocky Mountain	893,000	409,000	484,000	118.0
California	10,734,000	10,317,000	417,000	4.0
Total	54,399,000	39,892,000	14,507,000	36.3

This table shows a gain of 14,507,000 bbls. since November 17, 1934, or an increase of more than 1,000,000 bbls. a week. The total gain would have been 3,000,000 or 4,000,000 bbls. greater had California refinery operations been on the same basis as the rest of the country. California operators have been endeavoring to keep their gasoline output in line with current demand even during the winter months. Except for Inland Texas and California the increases in gasoline stocks since middle November range from 42 to 118 per cent. The increase at East Coast refineries was nearly 5,000,000 bbls. or 43 per cent.

Normally gasoline stocks show steady week to week gains until the end of April. If stocks continue to gain over the next eight weeks, they might easily total 60,000,000 bbls. by May 1. To this would be added stocks of unfinished gasoline and stocks of other motor fuels so that the grand total would be around 70,000,000 bbls. This quantity, it is conceded, would be too large and would result in dumping either at that time or later during the summer months.

It is said that this situation has been discussed with representatives of the industry and the government at Washington and efforts will be made in future allocations of refinery operations to prevent any large increases in inventories over the next 60 days.

Furnace Oils and Kerosene

Six cents is the top price on kerosene and No. 1 furnace oil with some sales reported at 5¾ and 5⅞ cents. The top price on the Nos. 2, 3 and 4 grades of furnace oils is 4½ cents with sales reported as low as 4¼ cents. There is tendency to force sales with price concessions in both the tank car and tank wagon markets. In metropolitan New York the larger companies have reduced tank wagon prices on No. 1 oil to 8¼ cents, 6½ cents for Nos. 2 and 3, and 6 cents for No. 4. This amounts to reductions of one-half cent except in the case of No. 1 where the price is one-fourth cent lower.

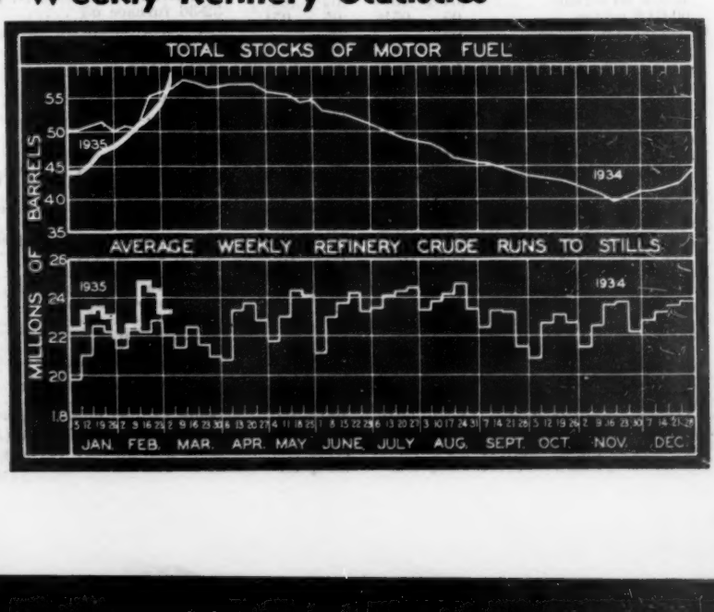
Most major companies favor a 2¼ to 2½-cent spread between the delivered tank car prices on furnace oils and the

(Continued on Page 59)

American Petroleum Institute Weekly Refinery Statistics

Week Ending March 2, 1935

	Capacity reporting per cent	Daily crude runs (bbls.)	Finished motor fuel (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	467,000	16,969,000	10,043,000
Appalachian	93.3	97,000	2,155,000	929,000
Indiana, Illinois, Kentucky	94.6	344,000	9,830,000	4,146,000
Oklahoma, Kansas, Missouri	83.7	237,000	5,489,000	3,849,000
Inland Texas	47.6	96,000	1,423,000	1,844,000
Texas Gulf	97.7	514,000	6,711,000	8,960,000
Louisiana Gulf	96.4	107,000	1,446,000	3,828,000
North Louisiana and Arkansas	83.7	44,000	260,000	421,000
Rocky Mountain	66.7	29,000	911,000	724,000
California	96.9	416,000	10,460,000	65,596,000
Total United States	89.8	2,351,000	55,654,000	100,340,000



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
U. S. Motor grades:				
Below 63 octane	.03½	.03⅝	.03¼	.03½
63-70 octane	.04⅜	.04¾	.04⅜	.04¾
60-62 400 grade:				
Below 63 octane	.03½	.03¾	.03⅜	.03⅝
63-70 octane	.04⅜	.04½	.04¼	.04½
64-66 375	.03⅞	.04	.03⅞	.04
68-70 360	.04⅛	.04¼	.04	.04¼
NORTH TEXAS—				
U. S. Motor grades:				
Below 63 octane	.03½	.03⅝	.03¼	.03½
63-70 octane	.04⅜	.04¾	.04¼	.04½
60-62 400	.03½	.03¾	.03⅜	.03½
64-66 375	.03⅞	.04	.03⅞	.04
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.04½		.04¼	.04½
63-70 octane	.05⅝		.05⅝	
60-62 400	.04½		.04¼	.04½
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.04½		.04¼	.04½
63-70 octane	.05⅝		.05⅝	
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 62 octane	.03⅜	.03½	.03¼	.03½
63-70 octane	.04¼	.04¾	.04¼	.04¾
60-62 400	.03⅜	.03½	.03¼	.03½
64-66 375	.03¾	.04	.03⅜	.04
68-70 360	.04	.04⅛	.04	.04¼
Aviation fighting grade	.04¾	.05	.04¾	.05
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.04½		.04⅝	
60-64.9	.05⅝		.05⅝	
65-70 octane	.06		.06	
68-70 350	.05½		.05½	
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.07	.08	.07	.08
58-60 400	.08	.09	.08	.09
EAST COAST—				
U. S. Motor, below 60 octane:				
*New York	.05¼	.05½	.05½	
Baltimore	.05¾		.05¾	
U. S. Motor, 60-64 octane:				
*New York (Bayonne)	.05½	.05¾	†.05¾	
Philadelphia	.05¾	.06	.06	
Boston	.05¾	.06	.05¾	.06
Baltimore	.05¾	.06	.06	
Charleston, S. C.	.05¾	.06	.06	
U. S. Motor, 65 and above:				
*New York	.05¾	.06	.06	
Philadelphia	.06	.06¼	.06¼	
Boston	.06	.06¼	.06	.06¼
Baltimore	.06	.06¼	.06¼	
Charleston, S. C.	.06	.06¼	.06¼	

*All grades of gasoline one-fourth cent less for small barge shipments.

GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.04¾	.05	.04¾	.05
60-64.9 octane	.05	.05¼	.05	.05¼
65 octane and higher	.05¼		.05¼	

Naphthas

	Mar. 5		Feb. 26	
PENNSYLVANIA (inland refineries)—				
50-52 (blending)	.04	.04¼	.04	.04¼
52-54 450 (blending)	.04	.04¼	.04	.04¼
54-56 450 (blending)	.04	.04¼	.04	.04¼
50-52 450 (blending)	.04	.04¼	.04	.04¼
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.03¼	.03¾	.03⅜	.03⅝
Cleaners' naphtha, 56-58 gr., 200 i.b.p., 320 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p., 250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p., 200 e.p.	.08¾	.09	.08¾	.09
Rubber, solvent, 68-70 gr., 100 i.b.p., 300 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p., 410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p., 415 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p., 330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
Grade 26-70	.02⅛	.02¼	.02⅜	.02½
Grade 18-55	.02¾	.02⅞	.02¾	.03
Low vapor pressure grades:				
14 lb. v.p. (max.)	.03⅛	.03¼	.03¼	.03½
12 lb. v.p. (max.)	.03½	.03¾	.03½	.03¾
NORTH TEXAS—				
Grade 26-70	.02	.02¼	.02	.02¼
Grade 18-55	.02⅝	.02¾	.02⅝	.02¾
Low vapor pressure grades:				
14 lb. v.p. (max.)	.02⅞	.03	.02⅞	.03
12 lb. v.p. (max.)	.03⅜	.03⅝	.03⅜	.03⅝
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
Grade 26-70	.02½		.02⅝	
CALIFORNIA—				
75-85 375	.05¼	.06	.05½	.06¼

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
41-43	.03½	.03⅝	.03½	.03⅝
42-44	.03⅝	.03¾	.03⅝	.03¾
NORTH TEXAS—				
40-41	.03¼	.03⅜	.03¼	.03⅜
41-43	.03½	.03⅝	.03½	.03⅝
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03¾		.03¾	
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03¾		.03¾	
PENNSYLVANIA (inland refineries)—				
45	.04¾	.04⅞	.04⅝	.04¾
46	.04⅞	.05	.04¾	.04⅞
47	.05	.05⅛	.04⅞	.05
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03½	.03⅝	.03½	.03¾
42-44	.03⅝	.03¾	.03⅝	.03⅞
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04½	.05	.04¾	.05¼
NEW YORK (Bayonne, N. J.)—				
41-43	.06		.06	.06¼
GULF COAST (domestic)—				
41-43	.04¾	.05	.04¾	.05

Petroleum Coke

(Prices per ton f.o.b. refineries in Chicago area)
(Refineries will absorb freight to 80 cents a ton)

	Mar. 5	Feb. 26
Pile run	6.00	6.00
Direct from still	7.00	7.00
Egg, nut, pea	8.50	8.50
Lump	8.50	8.50

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
32-36 straw	.02⅞	.03	.02⅞	.03
36-38 straw	.0	.03⅛	.03	.03⅛
38-40 straw	.03	.03⅛	.03	.03⅛
38-40 prime white	.03⅛	.03¼	.03⅛	.03¼
NORTH TEXAS—				
38-40 straw	.03⅛	.03¼	.03⅛	.03¼
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.02⅞	.03	.02⅞	.03
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.02⅞	.03	.02⅞	.03
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02⅞	.03	.02⅞	.03⅛
38-40 straw	.02⅞	.03⅛	.02⅞	.03⅛
38-40 prime white	.03	.03⅛	.03	.03¼
NEW YORK (Bayonne, N. J.)—				
No. 1	.05¾	.06	.06	
No. 2	.04½		.04½	
No. 4	.04½		.04½	

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gal., Diesel and fuel oils per bbl.)

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
32-36 gas oil, cracking stock	.02	.02⅛	.02	.02⅛
U.G.I. gas oil	.02	.02⅛	.02	.02⅛
32-36, zero to 15 gas oil	.02¾	.02⅞	.02¾	.02⅞
28-30, No. 3 burner oil	1.05	1.10	1.05	1.10
26-30, zero to 10 fuel oil	.95	1.00	.95	1.00
24-26 fuel oil	.75	.77½	.75	.77½
20-22 fuel oil	.70	.75	.70	.75
Below 16 fuel oil	.60	.62½	.60	.62½
NORTH TEXAS—				
32-36 gas oil, industrial	.02⅛	.02¼	.02⅛	.02¼
22-26 fuel oil	.65	.67½	.65	.67½
Below 20 fuel oil	.60	.62½	.60	.62½
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.03	.03⅛	.03	.03⅛
14-16 fuel oil	.70	.75	.70	.75
ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.03	.03⅛	.03	.03⅛
32-36 gas oil	.02⅞	.03	.02⅞	.03
14-16 fuel oil	.65	.70	.65	.70
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.02	.02⅛	.02	.02⅛
28-30 zero to 10, fuel oil	1.05	1.10	1.05	1.10
26-28 zero to 10, fuel oil	.95	1.00	.95	1.00
22-26 zero to 10, fuel oil	.82½	.87½	.82½	.87½
18-22 zero to 10, fuel oil	.67½	.72½	.67½	.72½
Below 18 fuel oil	.67½	.62½	.57½	.62½

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel in all these areas.

PENNSYLVANIA (inland refineries)—				
30-40	.03⅞	.04	.03¾	.03⅞
CALIFORNIA—				
Los Angeles:				
30-34 gas oil, per bbl.	1.10	1.26	1.10	1.26
27 plus Diesel	1.10	1.15	1.10	1.15
27 plus Diesel (bunkers)	1.13	1.20	1.13	1.20
12-16 (bunkers at tidewater)	.82½	.85	.82½	.85
10-16 (cargo lots)	.70	.75	.70	.75
12-17 (tank cars)	.62½	.80	.62½	.80
San Joaquin Valley:				
10-18 (tank cars)	.60	.70	.60	.70
San Francisco:				
27 plus Diesel, per bbl.	1.15	1.20	1.15	1.20
27 plus Diesel (bunkers)	1.19		1.19	
10-16 (bunkers)	.90		.90	
GULF COAST—				
28-30 gas oil	.03½	.03⅝	.03½	.03⅝
28-30 Diesel (bunkers)	1.70		1.70	
Bunker C (bulk cargoes)	.85	.90	.85	.90
Bunker C (bunkers)	.95	1.00	.95	1.00
NEW YORK (Bayonne, N. J.)—				
27 plus, gas oil	.04½		.04½	
28-30 Diesel (lighterage 6½ cents per bbl.)	1.89		1.89	
28-30 Diesel (tank cars)	.04½		.04½	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.15		1.15	
Industrial fuel (tank car)	.04			

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

OKLAHOMA (Group 3)— Mar. 5			Feb. 26	
Zero to 10 Cold Test:				
150-3	.10		.10	
180-3	.11¼		.11¼	
180-4	.10¾		.10¾	
200-3	.11¾		.11¾	
200-4	.11¼		.11¼	
240-3	.13¾		.13¾	
240-4	.13¼		.13¼	
280-3	.14¾		.14¾	
280-4	.14		.14	
300-3½	.15¼		.15¼	
400-4	.17¼		.17¼	
100-2 paraffin oil	.05¾		.05¾	
15-20 Cold Test:				
200-3	.10¾		.10¾	
200-4	.10¼		.10¼	
240-3	.12¾		.12¾	
240-4	.12¼		.12¼	
280-3	.13¾		.13¾	
280-4	.13		.13	
GULF COAST—				
Pale Oils:				
200-3	.07	.07½	.07	.07½
300-3	.07½	.08	.07½	.08
500-3½	.08½	.09	.08½	.09
750-3½	.09	.09¼	.09	.09¼
1,200-3½	.09½	.09¾	.09½	.09¾
2,000-4	.09¾	.10	.09¾	.10
Red Oils:				
200-5-6	.07	.07¼	.07	.07¼
300-5-6	.07¼	.07½	.07¼	.07½
500-5-6	.08	.08½	.08	.08½
750	.08½	.09	.08½	.09
1,200-5-6	.09¼	.09½	.09¼	.09½
CALIFORNIA (moving to domestic market)—				
Pale Oils:				
100-2½-3	.12½	.14½	.12½	.14½
200-2½-3	.12½	.14½	.12½	.14½
300-3-3½	.12½	.14½	.12½	.14½
350-3-4	.12½	.14½	.12½	.14½
400-3-4	.12½	.14½	.12½	.14½
450-3-4	.12½	.14½	.12½	.14½
550-3-4	.12½	.14½	.12½	.14½
600-3-4	.12½	.14½	.12½	.14½
Red Oils:				
200-4-5	.12½	.14½	.12½	.14½
300-5-6	.12½	.14½	.12½	.14½
350-5-6	.12½	.14½	.12½	.14½
400-5-6	.12½	.14½	.12½	.14½

450-5-6	.12½	.14½	.12½	.14½
500-5-6	.12½	.14½	.12½	.14½
600-5-6½	.12½	.14½	.12½	.14½
700-6½ plus	.12½	.14½	.12½	.14½
750-6½ plus	.12½	.14½	.12½	.14½
900-6½ plus	.12½	.14½	.12½	.14½
PENNSYLVANIA—				
150 vis. at 70° F., 3 color, 400-405 flash:				
Zero pour test	.23½	.24	.23½	.24
10 pour test	.22½	.23	.22½	.23
15 pour test	.22	.22½	.22	.22½
25 pour test	.21	.21½	.21	.21½
180 vis. at 70° F., 3 color:				
25 pour test	.23½	.24	.23½	.24
200 vis. at 70° F., 3 color:				
Zero pour test	.28½	.29	.28½	.29
10 pour test	.27½	.28	.27½	.28
15 pour test	.27	.27½	.27	.27½
25 pour test	.26	.26½	.26	.26½

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
Bright stocks:				
190-200 D	.17		.17	
150-160 D, 0-10	.14		.14	
150-160 D, 10-25	.13½		.13½	
150-160 24-40	.13		.13	
150-160 E	.13		.13	
Steam refined:				
630 light green (treated)	.07½	.08	.07½	.08
600 light green (untreated)	.06	.08	.06	.08
600 dark green (untreated)	.04½	.07	.04½	.07
PENNSYLVANIA—				
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):				
10 pour test	.18½	.19	.18½	.19
15 pour test	.17½	.18	.17½	.18
20 pour test	.16½	.17	.16½	.17
25 pour test	.15½	.16	.15½	.16
Steam refined:				
600	.08½	.09½	.08½	.09½
650	.10½	.11½	.10½	.11½
600 Pennsylvania flash	.11½	.12½	.11½	.12½
630 flash	.16½	.17½	.16½	.17½
600 Warren E filtered	.12½	.13½	.12½	.13½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Mar. 5		Feb. 26	
124-126 white crude scale	.02½	.02¾	.02½	.02¾
PENNSYLVANIA—				
122-124	.260	.265	.0290	.0295
124-126	.260	.265	.0275	
NEW YORK—				
Wax (a.m.p.) in bags fully refined:				
120-122	.0420	.0430	.0420	.0430
123-125	.0440	.0460	.0440	.0460
125-127	.0445	.0470	.0445	.0470
130-132	.05	.0510	.05	.0510
133-135	.0545	.0570	.0545	.0570
135-137	.0570	.0595	.0570	.0595
124-126 crude scale	.025	.0275	.027	.028
Petrolatum in barrels in carload lots:				
Dark green	.01⅞		.01⅞	
Amber	.02⅞	.03	.02⅞	.03
Extra amber	.03	.03½	.03	.03½
Lily white	.06⅝	.06¾	.06⅝	.06¾
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*				
122-124 wax	.0490	.0500	.0490	.0500
125-127 wax	.0515	.0525	.0515	.0525
127-129 wax	.0530	.0540	.0530	.0540
130-132 wax	.0590	.0600	.0590	.0600
132-134 wax	.0615	.0625	.0615	.0625

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Mar. 5	Feb. 26
U. S. Motor	.04¼	*.04¼ .04¾
60-62 400	.04⅝	.04⅝ .04½
61-63 390	.04½	.04½ .04⅝
64-66 375	.04¾	.04¾ .04⅞

*Correction of last week's error quoting U. S. Motor .04¼ to .04¾.

LOS ANGELES, CALIF.—				
U. S. Motor grades:				
53-55 octane	.04	.04¼	.04	.04¼
55-65 octane	.04¼		.04¼	.04½
65-67 octane	.04¼	.04½	.04½	.04¾
67-69 octane	.04½	.04¾	.04¾	.05
Above 69 octane	.04¾	.05¼	.05	.05¼
58-60 400 endpoint	.04½	.05	.04¾	.05¼
KEROSENE				
GULF COAST—				
41-43 prime white	.04⅝	.04¾	.04¾	.04⅞
41-43 water white	.04¾	.04⅞	.04⅞	.05
44 water white	.05	.05⅛	.05⅛	.05¼
LOS ANGELES, CALIF.—				
41-43 water white	.04¼	.04¾	.04¼	.04¾
LUBRICANTS				
NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.19	.19½	.19	.19½
600 S.R. unfiltered	.14½	.15	.14½	.15
650 S.R. unfiltered	.16½	.17	.16½	.17
600 flash S.R.	.17½	.18	.17½	.18
630 flash S.R.	.21½	.22	.22	.22½
Bright Stocks:				
8 color	.22½	.23	.22½	.23
6½ plus colors in dilution	.21	.21½	.21	.21½
NEUTRAL OILS				
200-3 color	.34	.35	.34½	.35
150-3 color	.28	.29	.28½	.29
PARAFFIN WAX (Fully Refined)				
NEW YORK (prices per pound):				
120-122 a.m.p.	.0405	.0425	.0405	.0425
123-125 a.m.p.	.0435	.0455	.0435	.0455
125-127 a.m.p.	.0440	.0465	.0440	.0465
128-130 a.m.p.	.04¾	.0490	.04¾	.0490
130-132 a.m.p.	.0495	.0505	.0495	.0505
133-135 a.m.p.	.0540	.0565	.0540	.0565
135-137 a.m.p.	.0565	.0590	.0565	.0590

Crude Oil Gravity Table

Gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas and Louisiana	9 Gulf Coast, Texas and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.06	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.08	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

Effective December 3, 1934, Panhandle Refining Co., purchasing oil in North Texas, posted below 29 degrees, 68 cents; 29-29.9 degrees, 70 cents, with 2 cents added for each additional degree up to 40 and over, at 92 cents.

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedule: Below 25°, 76 cents; 25-25.9°, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedules at below 29°, 84 cents, excepting Phiitex Oil Co., which begins with below 31° at 88 cents.

Column 1—Effective September 29, 1933, Texas Co. of Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phiitex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; October 1, by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective January 14, 1935, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03.

Column 3—Effective September 29, 1933, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25°, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day, Phiitex Oil Co. posted below 31°, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 5—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phiitex Oil Co. posted below 31°, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 6—Effective September 29, 1933, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30 by Texas Co., which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7—Effective September 29, 1933, by Stanolind Oil & Gas Co.

Column 8—Effective September 29, 1933, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana, 20-20.9°, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12; and in Cameron Meadows and Iowa, Louisiana, below 20°, 72 cents, with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 28. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district; Below 20°, 70 cents, with 2 cents added for each degree upward to 34° and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20°, 80 cents, with 2 cents added for each degree upward to 34° and over at $1.10.

Column 9—Effective September 30, 1933, Texas Co. (On September 29 Texas Co. has posted a schedule of 2 cents on each degree, but changed it on September 30.)

Column 10—Effective September 29, 1933, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 89)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas $1.00
Corsicana (heavy) (June 17, 1933)* ..... .80
Other fields ..... (See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Sanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., Empire Oil & Refining Co., and Atlas Pipe Line Co. posted 60 cents per barrel in East Texas, but on November 3 resumed its posted price of $1 per barrel, making it retroactive to October 22.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933) ..... $.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933) ..... .76
Pecos County, Yates shallow Pool (Sept. 29, 1933)* ..... .65
Jones and Fisher Counties*. See gravity table

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers.
..... (See gravity table)
Tomball (see note)* $1.13
Livingston (Sept. 29, 1933)† 1.00
Cleveland (Jan. 11, 1934) 1.00
Greta (Sept. 29, 1933) ..... .85
Refugio, light ..... (See gravity table)
Refugio, heavy (Sept. 29, 1933)‡ ..... .85
Markham and High Island .....
.....(See Gulf Coast gravity table)
Conroe .....(See Conroe gravity table)
Bosco, La. (Jan. 18, 1935)§ ..... $.93

Note—Tomball, effective September 29, by Humble Oil & Refining Co. and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Crude Oil Purchasing Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy by Humble Oil & Refining Co. Cleveland (Liberty County) posted by Magnolia Petroleum Co. §Bosco posted by Pure Oil Co.

South Central and Southwest Texas

(See note below table)

Darst Creek ..... $.87
Mirando ..... .80
Luling (Sept. 29, 1933) ..... .75
Pettus 1.05
Salt Flat ..... .87
Lytton Springs (Sept. 29, 1933) ..... .95
Duval County (Sept. 29, 1933) ..... .80
Saxet ..... .85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by

(Continued on Page 89)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

March 5, 1935

Taxes

The gasoline quotations given in the following tables include the 1-cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon or 3 cents a gallon off retail prices is permitted for purchases running between 4,000 and 10,000 gallons a month, or 4 cents a gallon off retail prices for purchase in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Denver, Colo.	18.0	20.0	5.0	13.0
Pueblo	17.0	19.0	5.0	13.0
Grand Junction	18.5	20.5	5.0	15.0
Casper, Wyo.	18.0	20.0	5.0	11.5
Cheyenne	18.0	20.0	5.0	13.0
Butte, Mont.	21.0	23.0	5.0	17.5
Billings	22.0	24.0	6.0	16.5
Helena	23.0	25.0	6.0	17.5
Great Falls	21.5	23.5	6.0	17.5
Salt Lake, Utah	19.0	21.0	5.0	16.0
Boise, Idaho	22.5	24.5	6.0	18.0
Twin Falls	22.5	24.5	6.0	18.0
Albu'que, N. M.	18.0	20.0	*6.5	13.0

*One-half cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Chicago	14.3	16.3	4.0	8.0
Decatur, Ill.	14.3	16.3	4.0	9.4
E. St. Louis	13.9	15.9	4.0	9.1
Joliet	14.3	15.8	4.0	9.5
Peoria	14.3	14.2	4.0	9.4
Quincy	14.1	16.1	4.0	9.3
Davenport, Ia.	14.3	16.2	4.0	9.4
Des Moines	14.1	16.1	4.0	9.3
Mason City	14.4	16.4	4.0	9.6
Sioux City	14.3	16.3	4.0	9.5
Duluth, Minn.	15.0	17.0	4.0	10.2
Mankato	14.7	16.7	4.0	9.9
Minneapolis	14.7	16.7	4.0	9.9
LaCrosse, Wis.	15.7	17.7	4.0	9.9
Green Bay	15.9	17.9	5.0	10.1
Milwaukee	15.8	17.8	5.0	9.7
Madison	16.0	18.0	5.0	9.9
Detroit, Mich.	15.0	17.0	4.0	9.0
Grand Rapids	14.9	16.9	4.0	10.8
Saginaw	15.2	17.2	4.0	11.1
Evansville, Ind.	16.0	17.8	5.0	10.0
Indianapolis	16.1	18.1	5.0	10.1
South Bend	16.4	18.4	5.0	10.4
Fargo, N. Dak.	15.7	17.7	4.0	10.9
Huron, S. Dak.	16.2	18.2	5.0	10.4
Sioux Falls	15.6	17.6	5.0	9.8
Kans. C., Mo.*	13.6	15.6	4.0	7.6
Springfield	13.3	14.5	4.0	7.0
St. Louis	13.9	15.9	3.5	7.6
St. Joseph*	13.6	15.6	4.0	8.8
Wichita, Kans.	13.2	15.2	4.0	6.0
Bartlesville, Ok.	16.8	18.0	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent federal tax.

Discounts to dealers: Undivided accounts, 3½ cents on premium and regular and 2½ cents on third grade off service station prices; divided accounts one-half cent less than undivided. Where prices are more than 1 cent below normal, the discounts are one-half cent less than above.

Stanolex Furnace Oil in Chicago

Effective Feb. 16, 1935, f.o.b. Chicago tank wagon prices: Range oil, less than 80 gallons, 8½ cents; 80-149 gallons, 7½ cents; 150 gallons and more, 7 cents. No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8½ cents; 100-149 gallons, 7½ cents; 150 gallons or more, 7 cents; No. 2 (30-34, stw. zero), less than 150 gallons, 8 cents; No. 3 (22-26, zero), less than 150 gallons, 7 cents; No. 4 (13-16 zero), less than 400 gallons, 7 cents; viscosity of No. 4, 85 at 100° F.; No. 5, less than 400 gallons, 5¾ cents. For deliveries of more than stated quantities of Nos. 2, 3, 4 and 5, deduct 1 cent.

(Note: Range oil not quoted by Standard; quotation on this product by Burning Oil Distributors Association.)

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Atlanta, Ga.	19.0	21.0	7.0	12.0
Augusta	19.0	21.0	7.0	15.0
Macon	19.0	21.0	7.0	15.0
Savannah	17.5	19.5	7.0	14.0
Birm'ham, Ala.	19.5	21.5	8.0	12.0
Mobile	18.5	20.5	8.0	11.0
Montgomery	20.5	22.5	8.0	15.5
Jackson, Miss.	18.5	20.5	7.0	13.0
Vicksburg	18.0	19.5	7.0	14.5
Jack'ville, Fla.	18.5	20.5	8.0	11.5
Miami	18.5	20.5	8.0	13.5
Pensacola	19.0	21.0	8.0	13.5
Tampa	18.5	20.5	8.0	12.5
Lexington, Ky.	17.0	19.0	6.0	11.5
Covington	14.5	15.5	6.0	12.5
Louisville	16.5	18.0	6.0	12.0
Paducah	16.5	18.5	6.0	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Dallas, Tex.	13.0	15.0	5.0	7.0
Fort Worth	13.0	15.0	5.0	7.0
Houston	14.0	16.0	5.0	7.0
San Antonio	16.0	18.0	6.0	7.0
El Paso	16.0	18.0	5.0	10.0
Muskogee, Ok.	16.0	18.0	5.0	7.5
Okla. City	16.0	18.0	5.0	7.5
Tulsa	16.0	18.0	5.0	7.5
Ft. Smith, Ark.	14.1	16.5	5.0	8.0
Little Rock	16.6	19.0	7.5	9.0
Texarkana	14.0	16.0	5.0	7.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Atl'tic City, N.J.	12.9	16.4	4.0	9.0
Newark	12.2	15.7	4.0	8.5
Annapolis, Md.	14.5	18.0	5.0	10.0
Baltimore	14.0	17.5	5.0	8.5
Cumberland	15.0	18.5	5.0	12.7
Wash'g'n, D. C.	12.0	15.5	3.0	9.5
Danville, Va.	16.5	20.0	6.0	12.9
Norfolk	15.0	18.5	6.0	11.3
Petersburg	15.5	19.0	6.0	11.4
Richmond	15.5	19.0	6.0	11.7
Roanoke	16.5	20.0	6.0	12.9
Charls'n, W.Va.	15.0	18.5	5.0	12.6
Parkersburg	14.5	18.0	5.0	11.2
Wheeling	15.0	18.5	5.0	12.2
Charlotte, N. C.	17.4	20.9	7.0	13.5
Hickory	17.5	21.0	7.0	13.7
Mt. Airy	17.5	21.0	7.0	13.8
Raleigh	17.2	20.7	7.0	13.3
Salisbury	17.5	21.0	7.0	13.6
Charleston, S.C.	15.2	18.7	7.0	11.3
Columbia	17.0	20.5	7.0	13.2
Spartanburg	15.5	18.0	7.0	13.5

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Omaha	16.6	18.6	5.0	10.0
McCook	17.3	19.3	5.0	10.7
Norfolk	17.0	19.0	5.0	10.4
North Platte	17.4	19.4	5.0	10.0
Scottsbluff	18.1	20.1	5.0	11.5

Note: Discounts to dealers; where service station gasoline prices are (maximum overall, including rent) as follows: Reliance, 2½ cents; Standard Red Crown, 3½ cents; Red Crown Ethyl, 3½ cents.

Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (minimum overall, including rent): Reliance, 2 cents; Standard Red Corwn, 2 cents; Red Crown Ethyl, 2 cents. Discounts to consumers for tank wagon deliveries covered only by Standard Commercial Consumers Contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
N. Orleans, La.	16.0	19.5	‡8.0	10.5
Baton Rouge	15.2	18.7	†7.0	12.0
Alexandria	16.1	19.6	†*8.0	10.0
Lafayette	16.3	19.8	†*8.0	12.0
Lake Charles	16.2	19.7	†*8.0	12.0
Shreveport	11.5	14.0	†7.0	13.0
Knoxville, Tenn.	18.7	22.2	8.0	13.5
Memphis	17.0	20.5	8.0	10.5
Chattanooga	18.0	21.0	8.0	11.0
Nashville	18.0	21.5	8.0	13.0
Bristol	17.0	20.5	8.0	14.0

*Includes city tax of 1 cent.

‡Includes 2-cent parish tax. †Includes 1-cent parish tax.

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at dealer price less one-half cent.

Louisiana kerosene prices include 1-cent state tax.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank wagon†	Posted retail	Incl'ds tax of	Kero- tank wagon
San Francisco	16.5	18.5	4.0	13.5
Los Angeles	15.5	17.5	4.0	12.5
Fresno, Calif.	17.0	19.0	4.0	14.0
Phoenix, Ariz.	20.0	23.0	6.0	‡16.0
Reno, Nev.	19.0	21.0	5.0	15.5
Portland, Ore.	19.0	21.0	6.0	13.5
Seattle, Wash.	19.0	21.0	6.0	13.5
Tacoma	19.0	21.0	6.0	13.5
Spokane	22.0	24.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Phil'delphia, Pa.	14.0	16.0	4.0	9.0
Pittsburgh	15.0	17.0	4.0	10.0
Allentown	14.5	16.5	4.0	10.0
Erie	11.0	13.0	4.0	9.0
Scranton	15.0	17.0	4.0	10.0
Altoona	15.0	17.0	4.0	10.0
Dover, Del.	14.5	16.5	4.0	10.0
Wilmington	14.5	16.5	4.0	9.0
Springf'd, Mass.	13.0	16.5	4.0	8.5
Worcester	13.0	16.5	4.0	9.0
Hartford, Conn.	13.0	15.5	3.0	8.5
New Haven	12.0	15.5	3.0	8.0
Providence, R.I.	11.5	14.0	3.0	8.5

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

Canada*

Imperial 3-Star Gasoline

IMPERIAL OIL, LTD.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Hamilton, Ont.	†22.0	25.0	6.0	17.5
Toronto, Ont.	†22.0	25.0	6.0	17.5
Brandon, Man.	30.2	33.3	7.0	21.8
Winnipeg, Man.	28.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	6.0	21.5
Saskatoon, Sask.	31.8	34.8	6.0	24.3
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta.	28.5	31.5	6.0	21.0
Vancouver, B.C.	27.0	30.0	7.0	24.0
Montreal, Que.	24.0	27.0	6.0	17.0
St. John, N.B.	26.0	30.0	8.0	19.5
Halifax, N. S.	26.0	30.0	8.0	19.5

*Imperial gallon used in Canada. †Governed by service station price.

Maritime provinces, all dealers 4 cents off service station price. All other provinces open dealers 3 cents per gallon off service station price (except Toronto and Hamilton cities which are—open dealers 2½ cents off service station price) 1 cent additional to 100 per cent accounts.

Naphtha

	Tank wagon*
Oleum spirits	14.7
V.M.&P. naphtha	13.0
Cleaners' naphtha	13.0
Stanisol	13.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago, January 5, 1935. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

New York and New England

SOCONY-VACUUM CO., INC.

	Gasoline: Posted dealer	Service station	Incl'ds tax of	Kero- tank wagon
Albany, N. Y.	12.75	16.0	4.0	9.0
Met. New York	11.75	14.5	4.0	8.75
Br'klyn, Queens	11.5	14.0	4.0	8.75
Buffalo	9.5	12.0	4.0	8.0
Rochester	12.5	15.0	4.0	8.5
Syracuse	12.25	15.0	4.0	8.75
Boston, Mass.	12.5	16.0	4.0	8.5
Portland, Me.	14.5	18.0	5.0	8.75
Manch't'r, N.H.	14.5	18.0	5.0	9.0
Burlington, Vt.	16.0	19.5	5.0	9.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero- tank wagon
Ohio points	15.5	17.5	5.0	*13.5

*Includes state tax of 1 cent, effective July 22.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Atlantic Refining Co., February 27, reduced tank wagon gasoline 3 cents and station gasoline 1 cent in Erie.

Standard Oil Co. of New Jersey, February 21, reduced tank wagon kerosene 2 cents in Washington. February 22, reduced tank wagon and station gasoline .9 cent in Spartanburg; February 25, reduced tank wagon gasoline 1 cent and station gasoline 2 cents. March 2, reduced tank wagon and station gasoline one-half cent in Atlantic City and Newark.

Standard Oil Co. of Louisiana, February 23, advanced tank wagon gasoline 1.5 cents and station gasoline 2.5 cents in New Orleans.

Standard Oil Co. of Nebraska, March 1, advanced tank wagon and station gasoline 1 cent in Omaha, McCook, Norfolk, North Platte and Scottsbluff.

Socony-Vacuum Oil Co., Inc., February 23, reduced tank wagon gasoline 1.25 cents and station gasoline 2 cents in Syracuse. February 25, reduced tank wagon and station gasoline 3 cents in Buffalo. March 1, reduced tank wagon gasoline one-quarter cent and station gasoline one-half cent in Albany.

Continental Oil Co., February 26, reduced tank wagon and station gasoline 2 cents in Salt Lake City.

Magnolia Petroleum Co., February 28, advanced tank wagon and station gasoline 1 cent in Houston.

SUN OIL CO. REPORT

Sun Oil Co. reports for the year 1934 consolidated net income of $6,650,463, against $6,971,842 for 1933. After $599,985 preferred stock dividends balance was $6,050,478, equivalent to $3.51 a share on the 1,725,772 shares of common stock outstanding as of December 15, 1934, prior to the distribution of a 9 per cent stock dividend on that date.

After cash and stock dividends earned surplus at the close of the year amounted to $9,609,318, against $10,778,749 at the close of 1933.

"One of the disturbing elements," said J. Howard Pew, president of the company, in the annual report, "is the possibility of the extension of the National Recovery Act for two years. Such an extension, in our opinion, is highly undesirable. The re-enactment of the National Recovery Act and the remaking of codes would be disturbing; however, in view of experience under existing codes there should not be unsurmountable difficulty in drafting a new code, better adapted to the requirements of our industry. It is hoped that any new code will confine itself largely to labor provisions, providing good wages, reasonable hours and the elimination of child labor."

NEWS FOR SALES DEPARTMENTS

California Tax Income Shows Yearly Increase

California's gasoline tax for January has reached a total of $3,002,621.56, or $402,493.74 more than the tax for the first month of 1934. This gain of 1.5 per cent was announced here today by the State Board of Equalization when assessment of last month's tax of three cents per gallon on motor vehicle fuel was completed.

Contrasting the gain registered at the beginning of this year with a loss of 3.8 per cent shown by comparison of the January, 1934, tax with that for the first month of 1933, the equalization board predicts that gasoline tax collections for 1935 may be expected to show a definite improvement.

Analyzing the statistics, the board said: "Although there was some fluctuation in fuel tax returns for the months of 1934, that year as a whole marked a gain over 1933 of a little less than one per cent. December, 1934, collections were 1.5 per cent more than those for the last month of the previous year.

"Now that the first month of this year has shown a comparable increase, we are encouraged to believe that 1935 gasoline taxes may exceed $40,000,000 as contrasted with the yield of $39,625,055.32 for 1934.

Administrative expense of the board is extremely low, requiring less than two-tenths of 1 per cent of the tax paid. Refunds for non-highway uses, however, absorb approximately 10 per cent of collections and the board cautions that even with a total yield of $40,000,000 for 1935, the net gasoline tax proceeds for road work may not be expected to exceed $36,000,000 during the year.

Oil companies reporting sales of more than one million gallons for January are listed below:

Name—	Gallons actually sold	Net taxable gallonage
Associated Oil	15,058,494	8,061,088
Caminol Co.	2,110,375	2,125,278
Estado Petroleum	1,341,984	818,625
General Petroleum	15,812,371	5,818,399
McMillan Petroleum	3,246,193	2,285,164
Western Oil	1,900,610	1,915,237
Hancock Oil	3,280,026	3,234,162
Richfield Oil	9,530,463	7,849,216.2
Mohawk Petroleum	2,068,479	1,766,853
Norwalk Co.	1,778,883	899,297
Olympic Refining	1,039,223.1	1,019,881.3
Petrol Corp.	1,178,612	780,698
Rio Grande	2,916,052.5	2,240,393
R. R. Bush	1,022,412	1,026,702
Seaside	1,941,723	1,213,531
Shell	22,768,900	10,119,070
Standard Oil	31,524,104	15,409,857.6
Sunset	3,000,940	1,503,399
Texas Co.	15,828,240	4,983,923.2
Union Oil	18,838,478	9,933,409.3
Wilshire	3,798,708	3,818,169.7

P. & C. Committee Makes Changes in Personnel

The Planning and Coordination Committee has announced several changes in personnel. W. C. O'Meara of the Quincy Oil Co. has replaced J. C. Richdale as chairman of the Massachusetts State Petroleum Committee. Mr. Richdale remains as a member of the committee. R. H. Tyler of the American Oil Co. has been appointed vice chairman of the Maine State Petroleum Committee. John R. Sherwood, Jr. of Sherwood Bros. succeeds P. S. Cochran as chairman of the Maryland State Petroleum Committee. Mr. Cochran remains as a member of the committee. The Pennsylvania-Delaware Petroleum Code Committee loses C. W. Gebhardt, of the United Oil and Manufacturing Co. and the New Jersey State Petroleum Committee loses J. M. Patterson of the Patterson Oil Co. and W. R. Rhodes of Rhodes Bros.

NEW DISTRIBUTOR APPOINTED

The United Petroleum Co., one of the oldest independent distributors of petroleum products in Cincinnati, Ohio, has been appointed as a distributor for Socony-Vacuum products, in Cincinnati and Hamilton County. This was announced recently by L. B. Roberts, manager of the Queen City district of the Socony-Vacuum Oil Co., Inc.

Improved Highways Swell Winter Sales of Gasoline

NEW YORK, Mar. 4.—Better highways and more adequate facilities to remove snow following storms have greatly aided gasoline consumption this winter in New England and New York State, according to George A. Perryman, manager of the Standard of New York division of the Socony-Vacuum Oil Co., Inc.

"That gasoline consumption has been greater this winter is indicated by the continued requests for touring information received by Socony-Vacuum Travel Bureau," Mr. Perryman explained. "Thus far this winter these requests have continued at a surprisingly high rate. They indicate to us that thousands more people are not only planning frequent trips, but many of them long trips.

"More people this year are driving to winter resorts in their own cars. Our stations also report that there has been an appreciable increase this winter in the use of motor cars by commercial travelers.

"Increased motor sales during 1934 and thus far this year have also been reflected in more winter motoring. Last year the automobile industry produced almost double the number of new cars built in 1932. This year it appears that most of the large automobile factories are in full production earlier than usual, and the prospects of immediate delivery of new models has stimulated new car buying."

Automotive Tax Revenue Declines 11 Per Cent

Federal collections from automotive taxes amounted to $20,623,837 in January, a decline of 11 per cent from the amount collected in the same month a year ago.

The Government collected $14,451,107 from gasoline, a decline of more than $3,000,000. Inclusion of delinquent taxes from the last three months of 1933, when the federal rate was 1½ cents a gallon, accounts for the large decrease. The comparison of automotive taxes collected during January of 1934 and 1935 is shown in the accompanying table.

Source of revenue—	Amt. collected— Jan., 1935	Jan., 1934
Lubricating oils	$2,184,488	$1,669,306
Gasoline	14,451,107	17,677,832
Transportation of oil by pipe line	698,012	817,924
Crude petroleum processed, etc.	139,383	.....
Automobile trucks	315,664	190,883
Automobiles and motorcycles	593,509	711,417
Auto parts and accessories	495,420	389,887
Tires	1,440,975	1,350,740
Inner tubes	305,279	327,674
Total (all automotive)	$20,623,837	$23,135,663
Per cent of all revenue collections	14.5	16.6

GASOLINE TAX OPPOSED

EDMONTON, Alberta, Mar. 2.—Representations against the proposed increase of the Alberta gasoline tax from 6 to 7 cents have been submitted to the provincial government by the Alberta Motor Association and the United Commercial Travellers' Association.

ALEXANDER H. HARRIS » » »

ALEXANDER HENRY HARRIS, general sales manager of the Rio Grande Oil Company, was born June 8, 1891, in Versailles, Ky. After completing elementary and high school courses he entered Cincinnati University and matriculated from that school of learning with high ambitions, a diploma and the basic requirements for a successful career. He chose the automotive industry and the following 15 years were devoted to service engineering and sales. At the conclusion of this period, he entered the employ of the Tide Water Oil Company and remained with this concern for three years as automotive engineer.

Mr. Harris first became an employe of Rio Grande Oil Company in June, 1930, as special sales representative. He found his connections very pleasant and the work to his liking as it gave him a chance to use his sales ability to good advantage. His advancement has been rapid since that time as it has been based on sheer merit. He was appointed California-Nevada division sales manager of the company in November, 1932, and remained in that capacity for a little over a year. In December, 1933, he was named general sales manager, the position which he holds at the present time.

White Star to Build New Rail and Water Terminal

The White Star division of the Socony-Vacuum Oil Co., Inc., subsidiary of the Standard Oil Co. of New York, today announced the construction of a new $175,000 combined rail and water terminal on the $2,500,000 Muskegon, Mich., Harbor.

The new terminal, on which construction will be started immediately to be completed about April 15, or soon after the opening of the 1935 Great Lakes navigation season, will comprise a new western Michigan distributing center for all petroleum products of the company.

The plant will be located on a tract of 14 acres adjoining the local belt line terminal of the Muskegon Railway & Navigation Co., subsidiary of the Grand Trunk Western Railway and of the Canadian National Railway. It will include a new dock to be erected on the east side of the Grand Trunk commercial slip in conjunction with the railroad's western Michigan car ferry terminal on the Muskegon Harbor. Gasoline, fuel oil and other petroleum products will be piped about 1½ miles to the 14-acre tract where more than 300,000 bbls. of storage, a warehouse, office and bulk distributing station will be built.

Large tankers of the Socony-Vacuum fleet will bring petroleum products from the refineries to Muskegon for distribution by rail and motor truck throughout this territory. Preliminary work on the double 6-inch pipe line and foundations for the big storage tanks will be started next week.

Tanks to be erected immediately will include two of 92,000-bbl. capacity, two of 59,000-bbl. capacity, and one of 7,500 bbls., or a total of about 13,000,000 gallons. Additional space for more tankage has been provided on the 14-acre site if later expansion is desired. Dirt dikes will be built complying with state fire marshal's rules. Approval to lay the pipe line and build the plant also has been obtained from the Muskegon city commission and county officials. The Grand Trunk also has granted use of its right of way for the pipe lines which will be laid 3 feet underground.

Announcement of the expansion program here came within a year after the White Star Refining Co., since merged with Socony-Vacuum, purchased the former Cardinal-Dixie Oil Co. independent stations and bulk plant at a cost of about $125,000. The new storage plant will increase the company's investment here to about $300,000.

At the time of the Cardinal-Dixie purchase, including 14 retail service stations and a small bulk plant, it was announced one of the major reasons for White Star's entry into Muskegon was the future possibilities of building a water terminal on Muskegon Harbor, one of the largest and finest on the Great Lakes today.

CHICAGO OIL MEN'S CLUB

Officers of the Chicago Oil Men's Club who held office from February, 1934, to February, 1935, were re-elected for a short term to run through 1935 at the club's annual meeting held February 28. A change in the by-laws makes the club's fiscal year run concurrently with the calendar year. The officers are: R. M. McNeily, Refiners Petroleum Co., president; P. A. Watson, Sun Oil Co., vice president; Frank E. Spencer, Spencer Petroleum Co., treasurer; H. George Donovan, Industrial Petroleum Corp., secretary. New directors elected: Hoyt Ogram, Kanotex Refining Co., and Fred A. Schaefer, Shell Petroleum Corp.

Barton Arch Indicates Major Oil Province

(Continued from Page 14)

of Mississippian, Pennsylvanian, and Permian strata over it just as we know them today. The oil seeps were also sealed and the oil began to accumulate along the pre-Mississippian plateau surface where the pools are now being found.

If this conception of the geology is correct there should be many small pools at the base of the Mississippian where the sands and gravel are a little high or the limestone more porous, thus offering favorable conditions for accumulation of the oil. Then too there are good possibilities in the old outcrop of the Simpson (Wilcox) where it now forms truncated sands similar to the Woodbine of East Texas. For this detail see the accompanying map. It is hardly probable that any accumulation as great as East Texas will be found, but the Simpson certainly has great possibilities.

The Hunton lime farther out is truncated and has oil possibilities. The sand thickness and the lime and chat porosity are generally variable at an unconformity and this rule apparently holds true on the Barton Arch. Consequently the size of the wells vary. While detailed field reports are regularly published in The Oil and Gas Journal enough records are presented here to show that the Barton Arch is a major oil region.

In Reno County a well in the Hunton had an initial of 960 bbls., another 150 bbls. per hour, one in the Burrton Field was rated at 5,481 bbls., the Hilger Pool had a 968-bbl. well at 4,068 feet. In Rice County the Shell Petroleum Co. well in the Genesco Pool made 1,294 bbls. from the Siliceous lime, and in the Brandenstein Pool a well came in for 260 bbls. in two hours from 3,044 feet. The conditions that prevail here lead to the expectation that these wells will produce for a long time.

The pools shown on the accompanying map of the Barton Arch are to point out their relation to the geology. Thirty-four pools are within the Arbuckle Area, and the 20 more pools are over the Simpson to Hunton line of outcrops. The slopes of the arch have not proved favorable. By this statement it is not meant to infer that oil and gas will not be found outside of this area but the most likely territory is most certainly within the Arbuckle and Simpson boundaries. Even so there is an area of over 7,000 square miles of possible oil territory with a considerable additional in the undetermined area to the northwest. The geological data at hand now points to the conclusion that the Barton Arch is a major Pertoliferous province, that many pools will be found, and the region will produce oil for many years.

Salina Basin

The Salina Basin is a major syncline between the Barton Arch and the Nemaha Mountains and extending northward into Nebraska. On the southwest side of the basin the dips are moderately steep while on the northeast side the formations slope more gently. Apparently the region has been under the deep sea nearly all of the time and has not received sediments favorable for the formation or accumulation of petroleum. There is a possibility of shoestring pools on the northeast side of the basin, but in general conditions are not promising in the Salina Basin.

Dodge City Basin

The southwest part of the State is in the Dodge City Basin. Not so much is known about the subsurface geology of this region as the other parts of the State. It is a tremendous area between the Barton Arch and the Wichita Mountains of Oklahoma and Texas. The second largest gas field in the world is around Hugoton, Stevens County, in this basin and this gas has a gasoline content which shows it to be of petroleum origin. Only recently oil was found in a well in Scott County.

These occurrences suggest the possibility of another arch in that region, but the deep wells are too few to show the pre-Permian geology.

Present Activities

Kansas State Oil Umpire Theo A. Morgan reports the 19,486 producing wells in that State have a daily potential of 472,438 bbls. for March with the allowable set at 139,700 bbls. daily, an increase of 1,100 bbls. over the February allowable. These wells are scattered through 42 of the 105 counties in the State. Last week's daily production rate was 146,400 bbls., only 350 bbls. short of the all-time record production of the week of February 16.

During February there were 56 new producers added to the Kansas list with a potential of 42,786 bbls. daily. Since January 1, a total of 237 new operations have been started and 22 new locations were staked during the last week in February.

The new wells have been found in the west central portion of the State. For instance Tom Palmer's No. 3 Steinle in Section 22-13-14, west in the Russell Field, has a potential of 1,848 bbls. on the pump and is a producer in the Siliceous lime.

Near Albert, in western Barton County, W. H. Treleaven and W. H. Brimm's No. 1 Hass in Section 30-18-15w, pumped 320 bbls. of oil in a potential test making its production from a sand with the total depth of well 3,613 feet.

In Rice County, near Ellinwood, Pat Ashby and John Holm's No. 1 Wenke in Section 7-20-10w, had 1,200 feet of oil in the hole in 36 hours from Siliceous lime found at a total depth of 3,372 feet. It was tested by swabbing.

In the Wakeeney Pool, in northern Trego County, Robert McNeely, geologist of Wichita, and the Alma Petroleum Corp., production subsidiary of the Watchorn Oil & Gas Co. of Oklahoma City, have a new well in the No. 1 Lemke, finding oil in the second pay zone of the Oswald lime at a total depth of 3,694 feet. The well bailed 40 bbls. of oil in a two-hour test without lowering fluid level. This well is the west offset of Alma Petroleum Corp.'s No. 1 Heckman in Section 11-11-23w, which has a potential of 882 bbls. daily from the first pay in the Oswald lime zone.

These and other typical strikes in the west central Kansas area have caused a very active leasing campaign that is centering in two northeast-southwest trends. One extends through Rooks, Ellis, Rush, Pawnee and Edwards Counties and covers the largest acreage. The other starts in Trego County and extends through Ness and into Hodgeman Counties to the south. A great deal of geophysical exploration has been done in these counties and several structures have been mapped.

It is usual practice to drill the wildcat wells with cable tools. When the new field has sufficient wells to permit careful logging of the formations, rotary outfits are used to the top of the pay zone and the well is then carefully drilled in with cable tools with all mud removed from the hole.

It is reported that Phillips Petroleum Co. recently had 15 showings in the Oswald and Siliceous limes in completing a well in Section 6-9-17w, in Rooks County. Two offsets were recently started to this well and other wells are drilling in Rooks County at this time.

This activity in Kansas is largely due to the fact that in the Big Bend country south of the Arkansas River from 65 to 75 per cent of the acreage held in 1930 was carried in later years and around those selected blocks new leases have been taken since 1933. In the country south of Rooks and Trego Counties about 50 per cent of the land leased in 1927, 1928 and 1929 was carried over the period of low activity through which the oil industry recently passed. In the period of leasing about eight years ago it was common practice to checkerboard all townships and when it became necessary to reduce leased land some companies retained at least five leases in each township dropping an equal number. Now that interest has been revived it is common practice to again lease those blocks dropped previously.

It is estimated that at least 6,000,000 acres are now under lease for oil and gas development in Kansas and as the time limit on the older leases is nearing expiration it seems quite certain that a very active drilling campaign will be carried on this year.

Governor Allred and Texas Officials Wire Protest Against Thomas Bill

AUSTIN, Tex., Mar. 4.—Texas, through Governor James V. Allred and heads of two other divisions of the Government, has begun an organized attack on new attempts at federal control of oil production, challenging the need of the pending Thomas bill, and demanding that the State officially be given a hearing before Congress acts on it.

Governor Allred plans to go to Washington to present in person official protest against the measure.

Attorney General William McCraw and Chairman Ernest O. Thompson of the Railroad Commission, joined hands with Governor Allred in sending hot telegrams of protest to Texans in the House and Senate against new attempts at federal control legislation.

Chairman Thompson telegraphed Vice President John N. Garner, Senator Tom Connally and Congressmen Sam Rayburn and Marvin Jones. He pointed out the recent Connally bill controlling interstate shipments of illegal oil and oil products is all the federal Government should do in legislation.

Governor Allred's telegram was to Senators Morris Sheppard and Connally and to Chairman Rayburn of the house committee on interstate commerce. Governor Allred said: "Hope you will arrange for hearing before the committee for interested Texans on so-called Thomas federal control oil bill. Vast majority of people of Texas, and probably more than 90 per cent of oil industry are opposed to the bill. I have sent a message to the Texas legislature strongly urging appropriate measures to stop wastage of gas in this State, and believe the matter can be adequately handled at reasonably early date. Many Texans would like to be heard before Senate and House committees, and it is hoped that hearing on the bill can be postponed until latter part of March or early part of April."

Attorney General McGraw, in messages to Sheppard, Connally and Rayburn said: "The democracy of Texas is unalterably pledged against federal control of oil production. I hope you will arrange for hearing before committee for all interested Texans on the Thomas federal control oil bill. It will be most helpful if this hearing could be held some time in April."

Chairman Thompson of the Railroad Commission said:

"It is our conviction that the Connally oil bill regulating the shipment of oil interstate and prohibiting any shipment of oil or products of oil produced in excess of the allowable as set by the producing state is all that is needed from Congress except mere ratifying the oil states compact. Nine sovereign oil producing states have entered into a solemn agreement to pass and enforce adequate state laws to effect true conservation and the prevention of waste. This is all that the conservationists could truly ask for at the hands of the states or the Congress.

"The states are conscientiously doing their part. Congress has done its part.

"With the state governments regulating matters wholly within their borders and the federal Government active in its proper interstate sphere and both cooperating there should be no further concern on the part of anybody. No federal oil bill should be considered. There is no need for it.

"In case the Thomas bill does come up, Texas should be given full opportunity to be heard in opposition.

"Our people in Texas are unalterably opposed to federal control. We believe the states should run their own internal affairs."

Engineers Recommend Oil Field Brine Disposal

(Continued from Page 16)

containing a commercial percentage of one of these rarer salts its extraction would mean a new industry for Kansas.

Concluding Statement

The foregoing review of salient points pertaining to the general problem of brine disposal and of the facts that have been developed by the present co-operative study of this subject in Kansas (started in August, 1934) shows the magnitude of the problem and indicates the many factors that will require detailed study before an ultimate solution can be reached. However, methods have been found (briefly referred to in this paper) which if used in accordance with good engineering practice, should reduce to a marked degree the contamination of fresh water sources by oil field brines. Also, as has been indicated, many legal considerations enter the problem upon which guidance will be required if the brine-disposal problem in each field and throughout the State of Kansas is to be solved to the best interests of all interested parties.

Acknowledgments

This investigation is being conducted under the direction of the United States Bureau of Mines in co-operation with the Kansas State Board of Health.

The authors are indebted to Earnest Boyce, Chief Engineer of the Kansas State Board of Health and to H. C. Fowler, Senior Petroleum Engineer of the U. S. Bureau of Mines, for criticisms and suggestions in the preparation of this report.

ASSISTANT MINERAL ECONOMIST

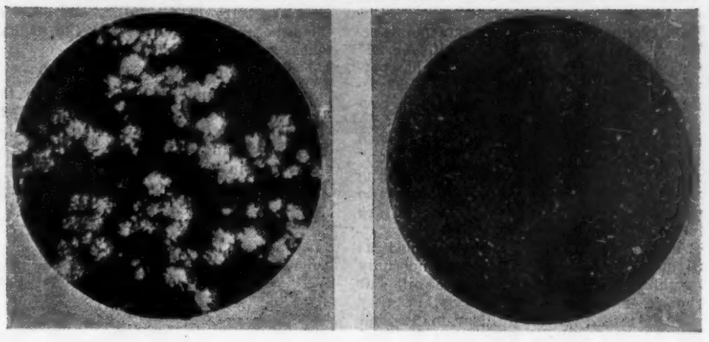
Applications for the position of assistant mineral economist, Bureau of Mines, must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than April 1, 1935. Optional subjects are: Coal, metals, petroleum, nonmetallic, and general economics of minerals. The entrance salary is $2,600 a year, subject to a deduction of 3½ per cent toward a retirement annuity. Information may be obtained from the secretary of the Civil Service Board of Examiners at the post office or customs house in any city which has a post office of the first or the second class, or from Civil Service Commission, Washington.

JAPANESE OIL CONFERENCE

A Tokio cable to the New York Times says the negotiations between the Japanese Government and representatives of the Socony-Vacuum and Royal Dutch Shell interests regarding the application of the new oil law in Japan have been adjourned until April on an understanding which, while it does not register a definite agreement, does not extinguish the prospect that one will be reached when the conversations are renewed.

As the foreign companies, in the absence of an agreement in details, are not yet satisfied, the conversations have been adjourned until April with an understanding that the Japanese Government will then be prepared to present concrete proposals.

Naphthenes in Fuel Oils Vary Pour Point Tests



A B

By B. H. MOERBEEK and A. C. VAN BEEST*

It may be considered a well known fact that the A.S.T.M. pour point test in its present form affords inadequate indications as to the anticipated behavior of fuels at lower temperature.

Dissatisfaction with the A.S.T.M. pour point test is sufficiently evident from the A.S.T.M. symposium on Motor Lubricants, while Moore and Beard even go so far as to doubt whether a really good test will ever be found. They say:

"The above work . . . points to the improbability of developing a method which will be universally applicable to all oils."

The objections to the A.S.T.M. pour point test may be summed up as follows:

First, in many cases pour point is dependent on the temperature at which the sample is pretreated, and on the thermal history[1] of the batch from which it has been taken[2]. This may often upset reproducibility because waiting for 24 hours before testing (as prescribed by A.S.T.M. D 97-33) does not give any guarantee for the total elimination of the influence of the thermal history; moreover, in actual practice it is often impossible to wait 24 hours before testing. Furthermore, this sensitivity to temperature results in a minimum and a maximum pour point, which may lie very far apart, and thus be very confusing to the consumer. The consumer will be inclined to consider the A.S.T.M. maximum pour point as being the one he is most interested in, as giving the highest guarantee against trouble. There can, however, be no doubt that in most cases, if not in all, the temperature at which the fuel may still be used without difficulty is considerably lower than the maximum pour point.

The primary purpose of the investigation described in this paper was: (a) To discover why some oils with respect to their pour points are sensitive to their thermal history, and (b) to find a method, the results of which should, if possible, be independent of these factors, at the same time corresponding better to the temperature at which the fuel still renders adequate service in practice.

Although we have as yet insufficient data to prove that we have completely succeeded, we think that a useful purpose will be served by publishing our results now, in order to stimulate interest and to evoke criticism and discussion.

Pour Point Determinations

It is a well known fact that distillate fuels are not temperature sensitive with respect to their A.S.T.M. pour point. On the other hand, residual fuels very often give different results when preheated to different temperatures. It was surmised by the authors that the asphaltenes present in residual fuels had something to do with their sensitiveness to their thermal history. To elucidate this point, a small percentage of asphaltenes precipitated with pentane from residual fuels was added to a residual fuel the pour point of which was insensitive to the temperature of pretreatment. These asphaltenes were obtained by dissolving the fuel in a tenfold quantity of pentane, then leaving it overnight and separating the precipitated asphaltenes. The precipitates, while still in a wet state, were rubbed fine in a mortar and dissolved in Fuel E.

The pour point has now become sensitive to the temperature of pretreatment.

On the other hand, a fuel which in itself is temperature sensitive as to its pour point can be made insensitive by removing the asphaltenes by pentane.

The removal of the substances which make the fuel temperature sensitive can be brought about by other means than by extraction with pentane. For instance, Fuel D, a fuel particularly sensitive to the temperature of pretreatment, after being refined with 2 per cent of sulphuric acid and 20 per cent of terrana earth at about 80° C., has become completely immune to changes in temperature of pretreatment. Some fuels can be made immune even by refining with 20 per cent of terrana only. Such a treatment does away with an objection which might be raised when precipitating asphaltenes with pentane; namely, that a slight trace of high melting paraffin wax (petroleum ceresin) might be removed, thereby altering the pour point. The treatment to which Fuel D has been subjected can hardly have removed high melting paraffin wax, and still the fuel has become immune to temperature changes. That removal of high melting wax is not the cause of the phenomenon is further supported by the fact that the addition of petroleum ceresin to a temperature insensitive fuel (E) has no influence at all.

A phenomenon which complicates the finding of an unassailable pour point determination is that a fuel may for a long time "remember" the temperature to which it has been raised at some given period.

Temperature Sensitivity

The behavior of a temperature sensitive fuel is really determined by a curve. The curve formed by the pour points determined after pretreatments at different temperatures does not give sufficient indication of the minimum temperature at which the fuel can be used. The maximum point of the curve is certainly much too high, and the minimum point definitely too low. Apart from this, the A.S.T.M. maximum does not always represent the true maximum pour point.

It is known from practical experience that fuels are often, if not always, freely flowing at temperatures of 15 to 20° C. below their A.S.T.M. maximum pour point. This discrepancy between the test and actual practice may be due to various causes, viz.:

(a) To the thermal sensitiveness of the fuel, notably after effects of the high temperature to which it has been subjected in operation. The investigation has shown that above a certain temperature of pretreatment, which in many cases lies near the A.S.T.M. temperature of pretreatment, it may be said that the higher this temperature, the lower the pour point.

(b) A second defect in the A.S.T.M. pour point determination is the rapid cooling. Some fuels thereby show higher pour points than with gradual cooling, while it may be assumed that in actual practice a fuel is only subjected to slow cooling.

The following figures prove this. A Rumanian waxy fuel was first cooled so rapidly that the difference in temperature between the oil and the cooling bath remained about 10° C. down to pour point temperature; secondly, the same fuel was cooled with a difference of 1 to 3° C. between the bath and the oil. In the first case the A.S.T.M. pour point was +23° C., in the second +14° C.

Another fuel, treated in the same way, showed +27° and +8° C., respectively.

(c) A further difference from practical circumstances is that in the A.S.T.M. pour point determination stirring is carefully avoided; in practice a fuel is always liable to be stirred or brought into motion by pumping and so on.

It might be supposed that the difficulty could be avoided by determining the minimum pour point. This is, indeed, what the I.P.T. setting point test (I.P.T. Standard Methods) attempts by specifying a very high temperature of pretreatment, and indeed, by this means, a determination is obtained which is practically independent of the thermal history of the sample. The reverse of the picture is, however, that the stipulated temperature of 100° C. is so high that the figures found are too low when compared with the behavior in actual practice. Apart from this, even a preheating to 100° C. does not always guarantee a minimum pour point.

Action of Asphaltenes

The most plausible explanation of the above mentioned action of the asphaltenes is that on cooling from a sufficiently high temperature they become concentrated on the surface of the crystals. This impedes the formation of large crystals (not of aggregates), but the chief result of this "skin" of asphaltenes is that the paraffin wax crystals retain much less oil, and cannot form a network of crystals so easily, which reduces the pour point. The asphaltenes, moreover, seem somewhat to retard the process of crystallization.

There is an artifice by means of which one can remove the asphaltenes from the paraffin wax and thus rule out their effect on the pour point. This is by cooling from 100° C. to 0° C. and then heating to about 35° C. and again cooling. One thus, indeed, achieves the object in view; at 35° C. the main mass of the wax crystals has already dissolved, while the "skins" of asphaltenes from which the paraffin wax has been largely or wholly eliminated are obviously left behind in a state in which they cannot be "picked up" by the crystals separating out during the second cooling.

Hence, this is a device by means of which one can make the pour point determination independent of the presence of asphaltenes; some manipulation of this kind was at one time suggested by the A.S.T.M. subcommittee (page 468), but was not included in A.S.T.M. D 97-33.

The great difference between the mode of crystallization of the paraffin wax crystals in a fuel containing asphaltenes (Fuel D) on cooling to 20° C. after preheating to 100° C. and in the same fuel after the pretreatment 100° C.–0° C.–35° C.–20° C. is sufficiently apparent from the photomicrographs A and B.

In A there are sharply defined crystal aggregates which stand out clearly against the oil, in B there is a gelatinous mass. Under the microscope it is also noticeable that the oil in A is disturbed much less in its free movement by the large crystal aggregates than that in B, although both have the same temperature.

These photos agree not only with the observations of Moore and Beard, but also with the aspect of a paraffin wax containing oil to which a special pour point reducer, e.g. heated Dubbs residue, has been added. It is a known fact that asphaltenes are the active constituents of such a residue. From the above experiments it had appeared that sensitiveness to temperature in the pour point determination was caused by asphaltenes, and so it was only natural to assume that the asphaltenes serve as pour point reducers here, thus causing the symptom of sensitiveness to temperature. Zimmer, Davis, and Frolich have suggested that the pour point reducer Paraflow is preferentially adsorbed by the wax, reducing the size of the larger crystals and preventing the adsorption of larger quantities of oil by the wax. A similar process is reported by Gurwitsch. It must be observed here that Paraflow, and also the asphaltenes from Dubbs residue which may act as pour point reducers, do not impede the agglomeration of the crystals. According to the literature on the subject, aggregation of crystals very often occurs in the presence of active contaminants, especially if these are colloidal.

Experiments Made

In order to demonstrate that, in this case too, the pour point reducer (viz. the asphaltenes) must be concentrated on the crystals to be active, the following experiments were made:

1. Fuel D contained 2.8 per cent by weight of pentane asphaltenes. It was heated to 75° C., cooled to 20° C., and filtered at 20° C. Filtration proceeded very quickly. The filtrate contained 1.5 (duplicate 1.8) per cent by weight of pentane asphaltenes. The same fuel, having been preheated to 75° C., was cooled to 0° C., reheated to 30° C., then cooled again to 20° C. Filtration at 20° C. was now very slow, and the filtrate contained 3.1 (duplicate 2.8) per cent by weight of pentane asphaltenes.

2. This same experiment was repeated with Fuel C.

(a) The oil is heated to 75° C., cooled to 10° C., without any intermediate operations, and filtered at that temperature. Filtration proceeds quickly.

(b) The same oil was heated to 75° C., cooled to 0° C., then heated again to 30° C., cooled to +10° C., and filtered at that temperature. Filtration is slow.

Asphaltenes in the filter oil of test (a): 1.1 per cent.

Asphaltenes in the filter oil of Test (b): 2 per cent.

Our explanation of this difference in filtration velocity and content of asphaltenes in the filter oil is, that in direct cooling from 75° C. to 10° or 20° C. the solubility of the asphaltenes in the oil

*Paper presented for discussion at the one hundred and sixty-second meeting of the Institution of Petroleum Technologists, January 8, 1935.

[1]By thermal history is meant the fluctuations of temperature to which the sample has been subjected during its whole life.

[2]Only the true pour point of wax-containing fuels is dealt with, not the apparent pour point which is found on the increase of viscosity at low temperature in the case of non-waxy fuels.

quickly decreases, and they concentrate on the surface of the paraffin wax crystals, and hence act as a pour point reducer. On being heated from 10° or 20° C. to 30° or 40° C. a considerable portion of the wax crystals dissolves, whereas the "skins" of asphaltenes which covered the crystals remain at that temperature obviously in a condition in which they are not easily "picked up" again by the new crystals when cooling is restarted. Then the asphaltenes do not act as pour point reducers, and are left in the filtrate.

Further experiments have enabled us to assume that the asphaltenes not only insulate the crystals from the oil, but that there is the possibility that they slightly retard the crystallization. To find out this the authors determined the specific gravity of Fuel C (either preheated or not) by means of a dilatometer.

TEMPERATURES AT WHICH THE SAMPLES WERE KEPT: 20° C.

After—	Fuel C, preheated/95°C	Fuel C not heated
1 day	0.9294 20/4°C.	0.9344
2 days	0.9293	0.9346
4 days	0.9294	0.9345
1 week	0.9298	0.9351
1 month	0.9305	0.9345
About 2 months	0.9305	0.9345
About 4 months	0.9309	0.9345

The preheated fuel has a lower specific gravity than the non-preheated, which points to the presence in the first fuel of paraffin wax in solution, which, in the second fuel, has already crystallized out; the gradual increase in the specific gravity is indicative of the steady crystallization of the paraffin wax. This happens very slowly, however; continuing at this rate it would take eight months for the pretreated fuel to catch up the other.

This single observation, however, is not in agreement with what the authors have hitherto found—namely, that a pour point reducer influences, not the quantity of the crystallized paraffin wax, but only the nature of the crystallization. They therefore regard it as an indication of the possibility—though not yet as a proof—that retardation of crystallization to some extent also plays a part. In any case, this retardation, too, is caused by the asphaltenes.

Proposal for a Modified Cold Test Which Avoids the Disadvantages of the Present Pour Point Determinations

According to the foregoing, the objections raised to the pour point determinations may be primarily met by excluding the influence of the natural pour point reducers (asphaltenes) on the determination. This may best be done by applying the expedient described above—namely, cooling to 0° C., heating to a temperature in the neighborhood of 35° C., and only subsequently cooling down for the actual pour point determination. Better check values are obtained in this way than by the present method, and the maximum pour point is then certainly found. The drawback, however, that this maximum pour point is an under statement, as it were, of the performance of the fuel in practice, continues to exist.

To achieve this end, we have devised the following tentative method, which, it would seem to us, reflects working conditions.

The guiding criterion of this method is, instead of the conventional pour point, the temperature at which the fuel can be shifted under a certain pressure in a tube. Care has been taken that the fuel shall not move through "slipping," that is to say, it does not begin to move when the outermost layer has melted, but only when the network of crystals has disappeared from the entire liquid.

We have checked temperatures so obtained by the known minimum temperature at which the same fuel can still be used in actual practice.

We have taken 20 c.m. of mercury as a pressure which certainly would not be regarded as abnormal in practice[3], while 0° C. was taken as the lowest temperature necessary to crystallize out most of the wax and to separate out the asphaltenes sufficiently[4].

[3]The most unfavorable circumstances to which a fuel can be subjected in practice are considered to be free flow through a tube from a tank placed on a platform at a reasonable level above ground.

Method of Cooling

Hence the fuel is introduced into the apparatus cooled to 0° C., heated to 35° C., and thereupon gradually cooled by only cooling the bottom part of the apparatus in a cooling bath which has a temperature of about 10° C. lower than the anticipated flow point. Not until about 5° C. above the anticipated flow point has been reached is the apparatus wholly immersed in the bath. Once the oil has assumed the temperature of the bath, the apparatus is placed under 20 c.m. mercury pressure. The temperature of the bath is now raised by about 1° C. per three to four minutes and the temperature of the oil at which it has moved over 2 m.m. is noted.

To show the effect of cooling and preheating to various temperatures on the results, we give below a series of flow point determinations.

1. Fuel D.

Pretreatment: Cooling to °C.	Heating to °C.	Flow pt. °C.
0	+30	+2
0	+30	+3
0	+35	+2½
0	+40	+2
0	+50	+1
—10	+30	+3

2. Fuel C.

Cooling to °C.	Heating to °C.	Flow pt. °C.
0	+20	—12*
0	+30	— 4½
0	+40	— 6
0	+50	—11
—10	+30	— 3½
—10	+40	— 4
—10	+50	—11
—20	+30	— 4
—20	+50	—11

*(—11° C.).

(Continued on Page 36)

[4]It is not impossible that cases may be found in which a lower temperature than 0° is required. It has been verified that the same result is obtained by cooling normal fuels to —10 or —20° C.

Refinery Prepared Asphaltic Road Oils of Emulsion Type Require More Study

By DR. F. H. GARNER
Anglo Persian Oil Co.*

It is only during the last five years or so that a number of the essential properties of bituminous emulsions for road purposes have been recognized and much intensive research work has been concentrated on such aspects as the mechanism of the breaking of emulsions on the road, whereby the bitumen is liberated in its original condition to act as a binding agent for the road material. The advantages which are claimed for asphaltic bitumen emulsions are that since they are applied cold the use of special heating plant is rendered unnecessary. Further, that their application is less dependent on weather conditions and thus enables economy in labor to be attained by reason of the ability to even out the year's program, keeping the same road gang steadily employed.

In considering the properties in bitumen emulsions we have two aspects to consider: (1) The methods of investigation which really come under the heading of physical or chemical research and are concerned with the general process of emulsification and manufacturing problems; and (2) the essential properties of emulsions from the point of view of their behavior when actually employed on the road.

Under the first category are such methods as size, frequency, analysis of emulsions and investigations of the asphaltic bitumen as regards ease of emulsification. Dealing with the latter aspect the following are the most important properties to consider:

Important Properties

Water content, which is determined by distillation with a suitable solvent in a modification of the Dean and Stark apparatus as standardized by the Institution of Petroleum Technologists.

A test for the presence of large particles in the bituminous emulsions, which is of importance in so far as their suitability for spraying is concerned. A definite quantity of emulsion is passed through a fine mesh sieve (B.S. mesh 100), and the percentage of material left on the sieve is determined. This particular test is of value mainly in the application of the emulsion for spraying in the course of which the emulsion has to pass through a series of fine holes, which would be blocked up if any considerable proportion of large particles was present.

Tests for Storage Stability.—Reference should be made to the confusion which has arisen in time past between stability on storage and stability on the road or breakdown, and it was therefore decided by a technical committee of the Road Emulsion and Cold Bituminous Roads Association, which has been responsible for the initiation of a great deal of research into the properties of bituminous emulsion, to recommend the use of the word "lability" as a method of distinguishing the latter property. Thus stability on storage indicates the behavior of emulsions in so far as settling is concerned, i.e., the resistance to separation of the emulsion in its constituent parts over varying periods of time, whereas the lability test is concerned with the rate of breaking of emulsion on the road.

No satisfactory test has yet been standardized which enables the stability of the emulsions in storage over a period of three months or so to be reproduced by means of laboratory apparatus in the course of a few hours or a few days. A method has, however, been adopted in B.S. Specification 434-1931, which effects a classification of emulsions by means of a short period test in which the emulsions are placed in 100 m.l. stoppered glass cylinders for seven days. The emulsions are then examined by passing through a sieve in order to determine the proportion of the binder which has coagulated. For the determination of stability of emulsions on storage over a long period the only satisfactory method is to store a barrel of the emulsion of 30 to 40 gallons capacity over a period of three months, and then determine the percentage of water present in a sample of the sieved emulsion.

Behavior in Cold Weather.—Owing to the content of water in asphaltic bitumen emulsions it will be appreciated that solidification occurs when such emulsions are cooled to temperatures below —3° C. Emulsions can be prepared by the use of special emulsifiers which will withstand relatively low temperatures, but, in general, such emulsifiers increase the stability of the emulsion to such an extent that sufficiently rapid breakdown does not take place on the road. This particular question, however, is not of great importance in Britain since protection of the drums under cover during periods of very low temperature is all that is required.

A very important property of emulsions is that of viscosity, since it is primarily on account of the low viscosity of these materials that they have been developed in competition with other materials which require heating prior to use. The viscosity of the emulsion must be controlled within fairly narrow limits since the viscosity must not be so high that it cannot be sprayed or applied satisfactorily. Hence the upper limit of the viscosity depends on the type of machine and pressures employed. On the other hand, if the emulsion is too fluid, it may run off the road before sufficient time has elapsed for the emulsion to break. For surface dressing higher viscosity emulsions can be used than for grouting purposes, for which it is essential that the emulsion shall penetrate easily into the compacted road material. The instrument which has been adopted for determination of the viscosity of emulsions is the Engler, as this has been found to be more suitable than either the Redwood or the Saybolt.

Breakdown of Emulsion

Lability, or Breakdown of Emulsions on the Road.—A considerable amount of work during the last few years has been directed toward the investigation of the mechanism of breaking of emulsions on the road, and a number of tests developed. The three factors which may contribute to the breakdown of emulsions are: (a) Chemical reaction between the emulsifier and soluble salts to be present in the aggregate; (b) adsorption of emulsifier on the stone or road surface; (c) evaporation of the water present in the emulsion with the result that a certain point is reached where the bitumen particles coalesce and the emulsion is broken; and (d) loss of water by capillary forces.

It is considered that the third of these is by far the most important to be considered in connection with the breakdown of emulsions on the road. The two former, namely, chemical reaction and adsorption of the emulsifier, do not take account of any variation in atmospheric conditions, whereas it is known in practice that the breakdown of emulsions is markedly affected by the conditions prevailing when the emulsion is applied—a more rapid break taking place under warm and dry conditions. In fact, under precisely those factors which affect evaporation of water. At the same time, the breaking is assisted to a considerable extent by the shearing effect of the roller or traffic.

A method of test for the determination of lability of bitumen emulsions, based on the fact that evaporation of water is the most important factor, has been put forward by a technical committee of the Road Emulsion and Cold Bituminous Roads Association which depends on the determination of water content at which the bitumen coagulates.

In conclusion, reference may be made to the adoption, at the seventh International Road Congress, held at Munich recently, of a resolution stating that a series of seven methods of test constituted an adequate minimum from the point of view of the road engineer, and by means of which the determination of the more important properties of asphaltic bitumen may be determined. The tests in question are:

Water content.

Sieve test.

Short and long period storage stability tests.

Tests for coagulation of the emulsion at low temperatures.

Viscosity determination.

Lability, or rate of breakdown on the road.

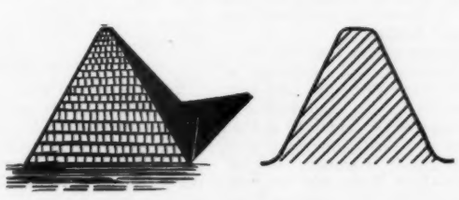
*Abstract of paper read before the Yorkshire section of the Society of Chemical Industry from "Petroleum Times."

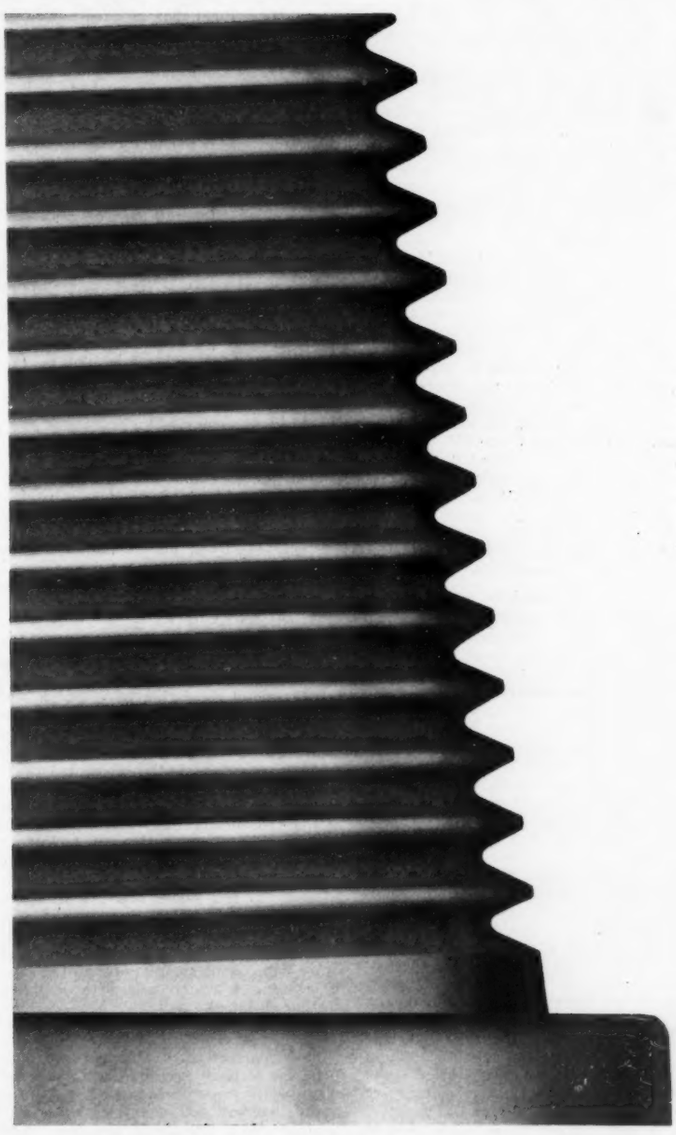
Reed FULL HOLE TOOL JOINTS

ADOPTED *by the*
AMERICAN
PETROLEUM INSTITUTE
as
STANDARD

WITH THE PROVEN
ESTABLISHED and ADOPTED
A. P. I. THREADS

DESIGNED LIKE THE
PYRAMIDS of EGYPT
FOR LASTING STRENGTH





REED ROLLER BIT COMPANY

MAIN PLANT « « « HOUSTON, TEXAS, U. S. A. » » » P. O. BOX 2119

Export Office: NEW YORK, N. Y., 30 Rockefeller Plaza

London Representative's Office: LONDON, E. C. 2, COVENTRY HOUSE, South Place

Branches at

LOS ANGELES, CALIF., 1317 Esperanza St. KILGORE, TEXAS LAKE CHARLES, LA. OKLAHOMA CITY, OKLA., 1129 Southeast 29th St.

Distributed Through Supply Stores Everywhere

Mid-Continent and Gulf Coast Distributors for MARTIN-DECKER PRODUCTS

(Continued from Page 34)

3. Sample which incidentally had been kept at 90° C. for 72 hours:

Pretreatment °C.	°C.	°C.	Pour point (A.S.T.M. D 97-33 modified by alternating temperature of pretreatment). °C.
100	—0	—20	+17
100	—0	—30	+23
100	—0	—40	+23
100	—0	—48	+23
100	—0	—50	+23
100	—0	—60	+26
100	—0	—70	— 7
100	—0	—90	—16

For this fuel the influence of the asphaltenes does not begin to take effect until a higher temperature is reached than with a normal oil of this type, presumably as a result of the change mentioned (owing to the above referred to heating for 72 hours).

1. Flow point (after pretreatment 0 to +35° C.) = 0° C. duplic 0° C.
2. Flow point (after pretreatment 225 to 0 + 35° C.) = —2° duplic —1° C.
3. Flow point (after pretreatment 225 to 0 to +35 to —12 to +35° C.) = +1° C.

It is very clearly seen, particularly in the case of Fuel C, that the temperature of pretreatment at which a maximum flow point is found lies between 30° and 40° C. Below this temperature the paraffin wax has not redissolved to a sufficient extent; at temperatures above 40° C. it seems that the asphaltenes begin to dissolve. In both cases a lower flow point is observed.

As compared with the A.S.T.M. method, the suggested method would seem to have the advantage of indicating a temperature at which the fuel, even after the most unfavorable preliminary history, is still serviceable under working conditions. Admittedly it will in many cases also be utilizable below this temperature, but there is always a possibility in practice of chance heating to the dangerous temperature range of 30 to 40° C., shortly before the oil is subjected to a low temperature. On the other hand, the drawback to the A.S.T.M. method—namely, that the maximum point is often much higher than the temperature at which the fuel is still utilizable—is avoided here.

Conclusions

1. Some fuels, especially residual fuels, give a pour point dependent on the temperature of pretreatment. To remove this difficulty the A.S.T.M. maximum pour point determination prescribes a temperature of pretreatment by which it is surmised a maximum pour point is found. The objections to be made are, first, that the A.S.T.M. pour point is not always the maximum, and, secondly, that in most, if not all cases, a fuel will be freely flowing at a much lower temperature than the A.S.T.M. pour point indicates.

On the other hand, the I.P.T. setting point aims at a minimum pour point, which is too low as compared with actual practice.

2. The cause of this dependency of the pour point of a fuel on its thermal history is the presence of asphaltenes. Removal of these asphaltenes makes a fuel temperature insensible. An explanation of this effect of the asphaltenes is that they, on cooling, separate out on the surface of the wax crystals, thereby preventing the formation of a cohesive crystal structure in the fuel.

3. A new method of determination is proposed which, though also aiming at a maximum point of a curve, adapts itself better to practical results. For this purpose the influence of the asphaltenes on the crystallization of the wax is eliminated by a suitable precooling, followed by preheating to such a temperature that the asphaltenes do not dissolve again, while instead of the pour point the temperature at which the fuel can be shifted under a fixed pressure is taken as a criterion.

The authors wish to thank the directors of the Bataafsche Petroleum Maatschappij for their permission to publish this paper, and those members of the staff of the Amsterdam laboratory who have assisted them with helpful suggestions.

More Efficient Methods of Drilling Being Developed in California

By L. P. STOCKMAN

LOS ANGELES, Calif., Mar. 4.—The Rio Grande Oil Co., which is developing the Perkins property in the Santa Barbara Mesa Field, has adopted a modified method of determining the effectiveness of cement jobs and one which apparently discloses as much data as under the generally accepted former method. Subsurface conditions in the Mesa differ from those existing in other fields and this characteristic is primarily responsible for the adoption of the new method of making water shutoff tests. Immediately overlying the productive oil sand there is a strata of 10 or 12 feet of gray sand which contains an accumulation of gas and which appears to have no water resistance. Operators have not definitely determined whether this gray sand is water bearing, but the Rio Grande decided to play safe and case off this zone because the absence of resistance to water flow indicated a possibility that even though it was now devoid of water in some sections of the field it might prove to be a source of considerable trouble at a later date if the water found its way into it.

The program adopted by Rio Grande Oil Co. consists of placing a cement bridge back of the water string in such a manner that cement not only seals off the gray sand but at the same time effects a water-tight seal. The water string is usually landed 1 foot below the top of the oil sand, at which point there is sufficient shale to make an effective water shutoff. In the case of Rio Grande's No. 2 Perkins, the top of the oil sand was logged at 2,029 feet and a water string consisting of 5¾-inch was landed and cemented at 2,028 feet. The primary conductor string, 10¾-inch, had previously been landed at 106 feet. The hole was subsequently cleaned out to 2,016 feet and the 5¾-inch water string perforated with four holes by a Lane-Wells shot perforator. These four shots were made in the casing in 1 foot at 2,009-10 feet and, after approval of the water shutoff, the holes were adequately plugged up and sealed off. No fluid entered the hole while standing for a period of 10½ hours for a test. The last 100 sacks of cement used in this and other subsequent completions on the Perkins lease were treated with a quick setting chemical.

New Method

The departure of this method from uniform methods in use in other fields for many years was viewed with disfavor for some time but subsequently became recognized as a legitimate practice. The Mining Bureau, which has always been progressive and at all times willing to recognize new developments that were sound in theory agreed to approve the new procedure provided that it would stand an acid test. The bureau, through its field inspector, promulgated a set of regulations designed to provide adequate protection for the productive zone and then gave a tentative approval. This proposal was approved by the Mining Bureau provided that "(1) mud fluid, weighing not less than 70 pounds, must be maintained at all times to the surface particularly when pulling drill pipe; (2) adequate blowout prevention equipment be provided and ready for operation at all times; (3) exact cementing depth of the 6⅝-inch casing shall be determined by careful coring beginning not lower than 1,975 feet; (4) after cementing, the 6⅝-inch casing shall be perforated above the sand and silt stone contact and the hole bailed dry for a test of the shutoff, and (5) this division shall be notified to witness a bailing test of the 6⅝-inch shutoff."

Rio Grande has completed five producing wells on the Perkins lease in the Santa Barbara Mesa Field up to the present and the output of each has been exceptionally clean. As is customary in this field, the wells were completed barefoot as no pipe is landed below the water string, although it is customary to use tubing. No. 2 Perkins was bottomed at 2,045 feet and has 106 feet of 10¾-inch, 2,028 feet of 5¾-inch and 1,872 feet of 2½-inch tubing. No. 3 was finished at 2,005 feet and has 128 feet of 10¾-inch, 1,965 feet of 6⅝-inch and 1,778 feet of 2½-inch tubing. No. 4 was carried down to 2,051 feet and finished with 110 feet of 13⅜-inch, 2,034 feet of 8⅝-inch and 1,900 feet of 3-inch casing. No. 5 was bottomed at 2,000 feet and has 124 feet of 10¾-inch, 1,966 feet of 6⅝-inch and 1,781 feet of 2½-inch tubing. These wells registered initials of 1,275 bbls., 798 bbls., 840 bbls. and 871 bbls. per day, respectively. The cut in each case was substantially less than 1 per cent. No. 1 Perkins was bottomed at 1,994 feet and was finished with 150 feet of 10¾-inch, 1,967 feet of 5¾-inch and 1,798 feet of 2½-inch tubing. It showed an initial of 535 bbls. of clean 18.2 gravity oil.

Improved Drilling

The Union Oil Co., one of the most progressive operators in California, has been doing some fast drilling during the past year and a check at the close of 1934 showed that drilling efficiency had shown a substantial improvement. In the Dominguez Field, for instance, the Union registered an average of 79.32 feet per crew per day during 1931 but this increased to 90.07 feet per crew per day in 1932 and jumped to 100.5 feet per crew per day in 1933 and rose to an average of 122 feet per day in 1934. Some of this increased average footage may be attributed to a shifting of drilling operations from one zone to another but for the most part it represents increased efficiency in actual drilling.

During 1934, the Union Oil Co.'s field department developed and perfected a new design of rotary drill pipe and this has been accepted by the American Petroleum Institute as a tentative A.P.I. standard. This new drill pipe is a full hole, or flush inside diameter, and it has a uniform bore from top to bottom. The new drill pipe, perfected by the Union Oil Co., has an inside diameter of 3.181 inches with external upset and 4½ inches in outside diameter. This latter dimension is the same as the original 4½-inch drill pipe and thus permits the same thread gauges for couplings and tool joints pipe threads that were originally used on the old type of 4½-inch pipe. The same relative differences follow through on all sizes of pipe, by simply transferring the upset from within to outside and utilizing the same pipe thread gauges now in use in internal upset drill pipe.

The new inside diameter drill pipe has many uses, not only as a drill stem for making hole, but for all methods of testing, cementing and recementing where, formerly, it has been largely the practice to use a string of tubing when making water tests or recementing or doing other remedial work. The new type of pipe is bored true to gauge and reamed so that it can be used for swabbing operations or in making a pumping test when necessary and can also be used for formation or casing tests either by bailing or swabbing.

Other Improvements

This new type of drill pipe is of special importance in connection with coring operations as a core barrel has been designed whereby the inner barrel is pumped down the hole to the bottom of the drill pipe projecting out through the core shoe. The inner barrel is held in position either by pump pressure or mechanically. After the desired amount of core has been taken, mud circulation is reversed and the core brought to the surface. This permits as frequent examination of core samples as may be desired and eliminates the necessity of removing the drill pipe until it is necessary to replace the coring shoe. In designing the full hole drill pipe, the primary object was to remove restrictions and permit the maximum flow of circulating fluid thereby increasing the drilling efficiency and reducing pump maintenance.

The Union Oil Co. has also advanced and increased reaming operations and this practice, which is coming into more general use, greatly increases efficiency. The company when undertaking reaming operations begins with a hydraulic reamer and then follows up with a spring type reamer. This is done in order to ream the hole in such a way that all ridges are removed and the hole thus is made straighter. It has been found by experience in several California fields that the initial reamer tapers off with wear and thus after hard usage the diameter is reduced. The secondary reamer, of spring type, increases the diameter of the hole to the required size without trouble as the one used first has done most of the work. Use of this practice has greatly enhanced drilling efficiency and consequently reduces the possibility of stuck drill pipe or casing. It is also advantageous in that it permits greater footage per tool.

Glass Model

The Union Oil Co. has constructed a peg model of the Dominguez Field of Los Angeles Basin which consists entirely of glass. As far as known this is the first peg model made of glass. After viewing it for a time one loses sight of the glass portion with the result that the oil zones are left suspended above the base in their true relationship. This is accomplished by coloring the glass black for the distance of oil sand penetrated. In the old wood peg models, the various water zones or oil zones were outlined with colored strings or the pegs graduated in size or certain portions colored. The Union's glass model, which is built true to scale, affords an almost perfect perspective both horizontally and vertically. This model was built by the field department under the personal supervision of Edmund Jussen.

Although members of the field department scoff at the idea that the glass

(Continued on Page 43)

Chopping Down THE HIGH COSTS OF ROTARY POWER

THIS kind of Diesel-electric power quickly pays for itself on any location where water is scarce or where natural gas is limited or not available. Draw works, rotary table, mud pumps — all can be driven safely, smoothly, dependably, and at minimum expense.

One company has been using a pair of Cooper-Bessemer Diesels for Diesel-electric drilling, similar to the one illustrated, for more than four years.

Cooper-Bessemer engineers have made a most intensive study of the operating characteristics of Diesel A. C. and D. C. drives, also Diesel direct drives. The very latest records are available to you.

THE COOPER-BESSEMER CORPORATION

Mt. Vernon, Ohio — PLANTS — Grove City, Pennsylvania

640 East 61st Street, Los Angeles, Calif
201 East First Street, Tulsa, Oklahoma
Magnolia Building, Dallas, Texas
25 West 43rd Street, New York City
225 Crockett Street, Shreveport, La.
505 Esperson Building, Houston, Texas

A Cooper-Bessemer 300 H. P. Type FP six-cylinder Diesel engine with atmospheric relief injection system, radiator and direct-current generator, all mounted portably on sub-base for Diesel-electric drilling

Dynamometer of New Type for the Study of Pumping Problems

By EMERY KEMLER

Engineering Department, Gulf Research & Development Corp., Pittsburgh, Pa. Assistant Professor-Mechanical Engineering, University of Pittsburgh*

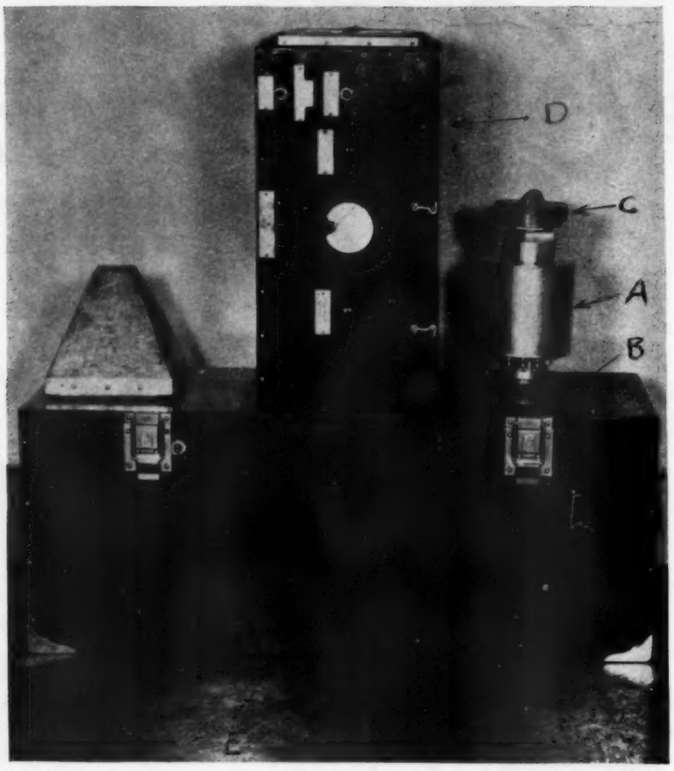


Fig. 1

The problem of determining the most desirable operating conditions of an oil well pumping unit or rig front, the selection of the proper material and size of sucker rods, and the design of a pumping unit require that sucker rod loads be known with a reasonable degree of accuracy. The segregation of rig losses, the proper selection and operation of prime mover and reduction unit, and the analysis of the operation of subsurface equipment require a knowledge of polished rod horsepower. The investigation of such problems as the instantaneous stresses set up in a pull rod line or backside crank installation when the well is suddenly hooked on, a study of such problems as the effect of anchoring the tubing on rod load, tubing stresses and rod horsepower, and an analysis of the effect of subsurface equipment on rod loads make it necessary to have a dynamometer that is rugged, which can follow the sudden changes in load without any lag or damping effect, which will record the load in its true position with respect to polished rod movement, and which will give a card large enough to allow the desired effects if accurately measured.

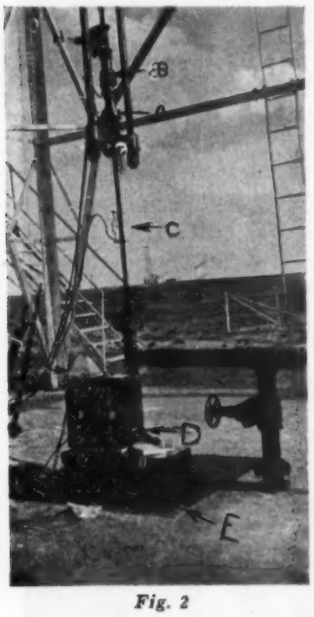


Fig. 2

Figure 1 shows a magnetic strain gauge type dynamometer to be described in this paper: A is the strain gauge used for measuring the load in the polished rod, B and C are a washer and knife edge respectively, to take care of initial misalignment and reduce bending in the compression tube of the strain gauge, D is the recorder, and E is the carrying case in which the complete instrument can be transported. Figure 2 shows three types of strain gauges applied to a well: A is an experimental magnetic type gauge, B is a carbon pile type gauge, and C is a telemeter. The recorder D with viewing hood F is shown on the carrying case E.

The gauge is applied by attaching polished rod clamp G just above the stuffing box. The walking beam is then lowered and the load removed from the polished rod. Clamp H is removed and the gauges are slipped over the polished rod. Clamp H is then replaced above the gauges, the load picked up, and clamp G removed. A string or wire attached to the hanger or walking beam is then connected to the stroke recording mechanism in the recorder D. The dynamometer is now ready to record the load.

Figure 3 is a schematic drawing of the recorder. The recorder consists essentially of an oscillograph (1) and a reducing motion (3). The oscillograph records in a vertical direction the load as measured by the strain gauge, and the stroke is recorded in a horizontal direction through the reducing mechanism. The load and stroke are recorded on screen (7) by a spot of light which originates from a lamp (20). The light from the lamp passes out through a small hole (23) in a cover (22). The light beam passes through lens (80) and is reflected from a small mirror in the galvanometer and travels back to the screen. As the polished rod moves up and down, the oscillograph oscillates in a horizontal direction causing the spot of light on screen (7) to move back and forth horizontally. Variations in the load as the polished rod moves up and down causes an unbalanced current proportional to the load to flow through the oscillograph. This causes the oscillograph mirror to tilt about a horizontal axis, and causes the light beam to move up and down as the load varies. The resulting curve will be a load-displacement diagram which can be viewed on the screen or can be photographed for permanent record.

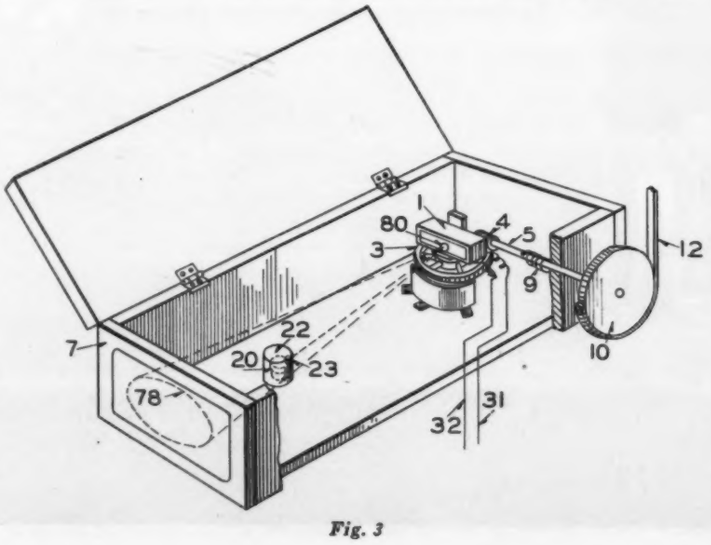


Fig. 3

Figure 4 shows a schematic drawing of the magnetic type strain gauge. The essential parts of the strain gauge are the compression tube, the armature, and the pole pieces, each of which carries a coil. The gauge is assembled such that there is an air gap between the pole pieces and the armature. The measuring circuit, shown in principle in Figure 4, is a wheatstone bridge consisting of two variable impedances made up of the coils mounted on the pole pieces and two fixed resistances R_1 and R_2. When there is no load on the gauge the resistances R_1 and R_2 are adjusted such that either no current or a fixed amount of current passes from A to B. When current passes from A to B it passes through the rectifier, thence through the choke coil and the oscillograph. The oscillograph then records or indicates the amount of unbalanced current. When a load comes on the gauge the armature is caused to move relative to the pole pieces and thereby causes a change in the air gap on each side. The change in air gap causes the impedance of the coils to change. This results in an unbalance of the circuit which is made proportional to the load.

Two sets of coils, 6-8 and 7-9 are used to measure the load. These are mounted diametrically opposite on the compression tube and are adjusted such that if any bending is introduced in the tube, it will not influence the load recorded; any such bending results in one set of coils giving a higher reading and the other set a lower reading, the sum being only the direct load.

In order to reduce the amount of current drawn by the coils it is necessary to use high frequency AC as the power supply. For this purpose a small M-G set, operating from a 6-volt storage battery and generating 6-volt, 500-cycle AC is used. The entire dynamometer consisting of the battery, M-G set, recorder, gauge, viewer, film packs, cable and other miscellaneous parts can be placed in the carrying case which is 11"x10⅝"x30" and weighs approximately 85 pounds.

Examples of Use

Figure 5 is a card taken on a long stroke pumping unit making eight 11-foot strokes per minute. The well had 2,200 feet of seven-eighths inch rods and was equipped with a 4-inch pump.

Figure 6 was taken with the pump making twenty-three 72-inch strokes per minute.

Interpretation of Dynamometer Cards

The use of dynamometer cards in the study of the operation of subsurface equipment requires a study of the form of cards as well as a determination of the loads and horsepower. The cards that have been included with this paper have been chosen to show the type of card obtained with this new type dynamometer. As our knowledge of the effects of subsurface operating conditions on the form of dynamometer cards becomes better understood, the dynamometer will become more useful and necessary in the study of pumping problems and in the establishment of the best operating conditions. For such work it is therefore necessary to have a dynamometer that will record the load in correct

*Before A.I.M.E., New York.
Author's title, "A New Type Dynamometer for Study of Pumping Problems."

LAYNE & BOWLER COMPANY,
8000 Market St.
Houston, Texas.

Gentlemen:

Please mail copy copies) of your complete new catalog on "Everything Below The Casing."

NAME_____

FIRM_____

ADDRESS_____

amount and its true position with respect to polished rod movement.

One quite commonly accepted statement is that the peak rod load depends on the maximum rod acceleration. Under normal operating conditions, other factors exert a greater influence on the shape of the card and on the peak load, than

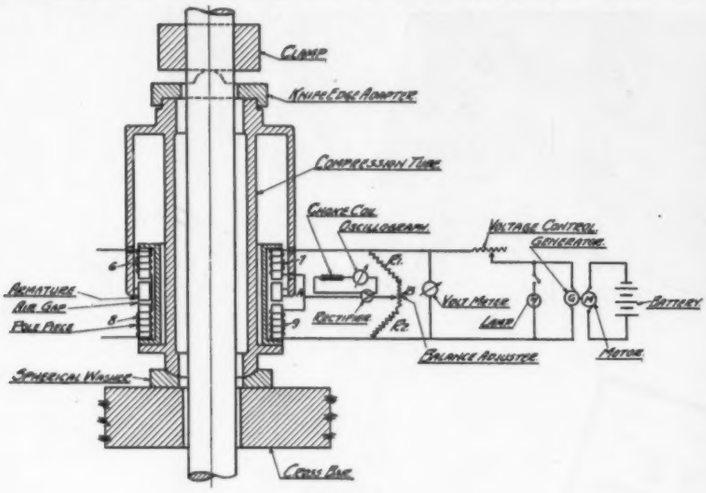


Fig. 4

maximum rod acceleration. One should anticipate finding such a condition existing after studying the forms of dynamometer cards.

The maximum upward acceleration of the polished rod occurs at the start of the upstroke of the pump and if this were the controlling factor we should expect the peak load to occur at this point. As a matter of fact the peak load occurs near, or even after, the middle of the upstroke, at which point the rod acceleration will be zero or negative.

Before going further into a discussion of the conditions which govern the form of well dynamometer cards to a great extent, it will be well to enumerate the primary factors which go to make up the

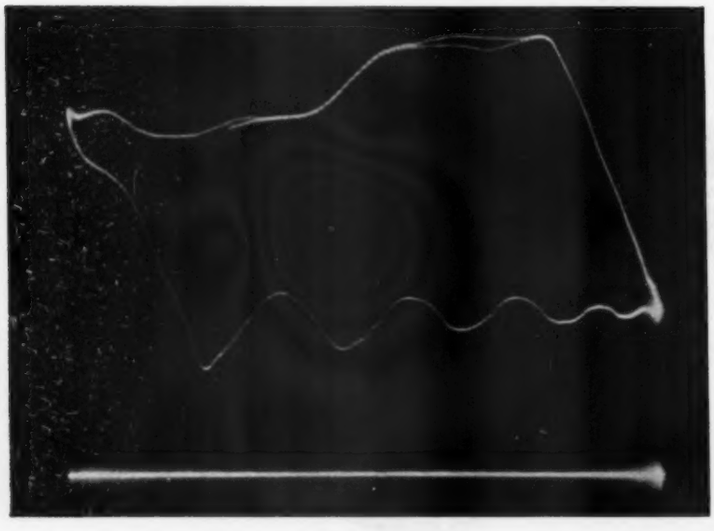


Fig. 5

total polished rod load. These may be listed as follows:

1. Weight of rods.
2. Dynamic rod load.
3. Rod friction.
4. Stuffing box friction.
5. Weight of oil.
6. Dynamic oil load.
7. Friction of oil column.
8. Plunger friction.
9. Pressure on plunger due to fluid level in hole.
10. Load on rods caused by pumping on downstroke.

Of these loads, 9 and 10 will subtract on the downstroke since they act upwards and tend to reduce the load in the rods. Since friction reverses itself every stroke so as to oppose motion, the friction forces likewise tend to reduce the polished rod load on the downstroke whereas they increase it on the upstroke.

If it were a matter of adding algebraically, these components of the polished rod load, the interpretation of cards and the determination of the most advantageous operating conditions would be an easy matter. The problem is unfortunately complicated by many factors, of which the following three are probably the more important:

1. A force cannot be transmitted along the sucker rods or through the oil column with a velocity greater than that of the velocity of sound in the material.
2. The oil load cannot be picked up or dropped immediately by the plunger because it must move an amount equal to the tubing stretch before it can give up or support the entire oil column load.
3. An increasing or decreasing rod load causes a further delay in the picking up or dropping of the oil load since the polished rod must move an amount equal to the rod stretch before the plunger starts to move.

While such things as time for the valve to close, friction in the stuffing box, standing waves of force, effect of free gas in the oil, and many similar items exert an influence on the shape of the dynamometer card and have much to do with the successful operation of a pumping rig, their influence is not so pronounced as Items 1, 2 and 3. In order to show just how they influence a card, two examples will be worked out which will take into account, only the static and dynamic load of the rod string and the static and dynamic load of the oil column, considering, however, the influence of Items 1, 2 and 3 on the operation of the pumping unit. In these examples, a 2,200-foot well, being pumped by a 4-inch pump with seven-eighths inch rods, making eight 11-foot strokes per minute in case 1, and 21.1 fifty-inch strokes per minute in case 2 will be used. The polished rod motion has been taken as being simple harmonic for simplicity.

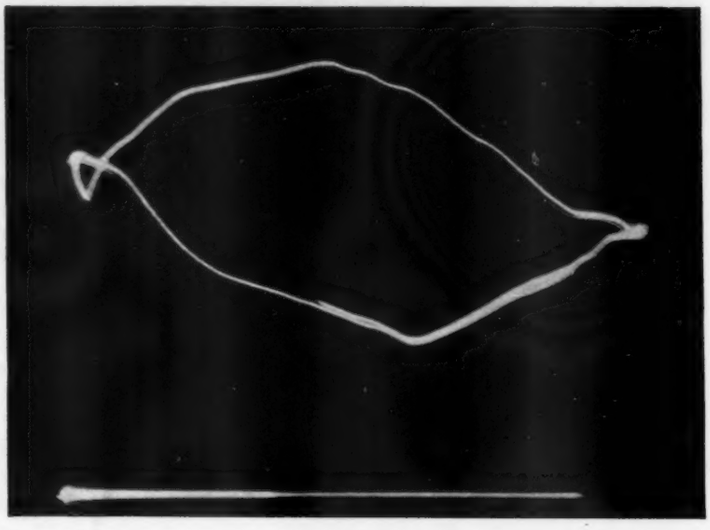


Fig. 6

Figure 7 shows the construction of a hypothetical dynamometer card for case 1 which corresponds to Figure 5. In this figure, the various components which go to make up the total polished rod load have been plotted against crank position in degrees. The rod weight and the dynamic rod load need no explanation for their construction. The oil weight carried by the rods and the dynamic oil load are the items which are principally influenced by Items 1, 2 and 3. Since a force cannot be transmitted with a velocity greater than that of sound in the material, it takes at least a time in seconds equal to the length of rods in a well divided by the velocity of sound in steel, which is 16,000 feet per second after the polished rod starts up before the plunger starts to move upward. For the case considered here, this amounts to approximately 6½ degrees movement of the crank.

For 2,200 feet of seven-eighths inch rods there is approximately 1½ inches stretch for every 1,000 pounds increase in load. The tubing contracts approximately one-quarter inch for every 1,000 pounds load removed, so that in order to pick up a 1,000-pound load from the tubing, it is necessary for the polished rod

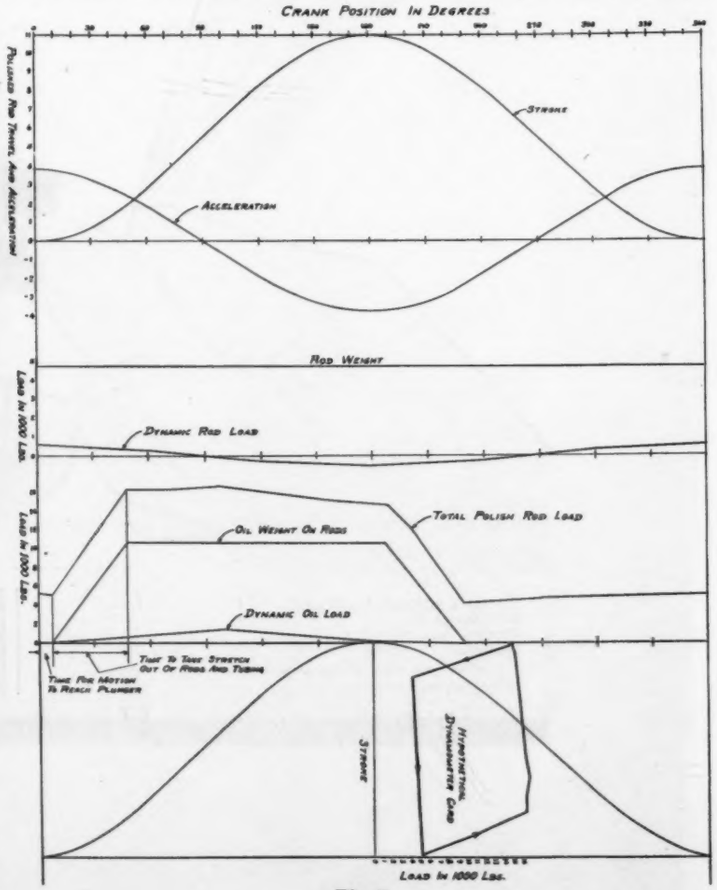
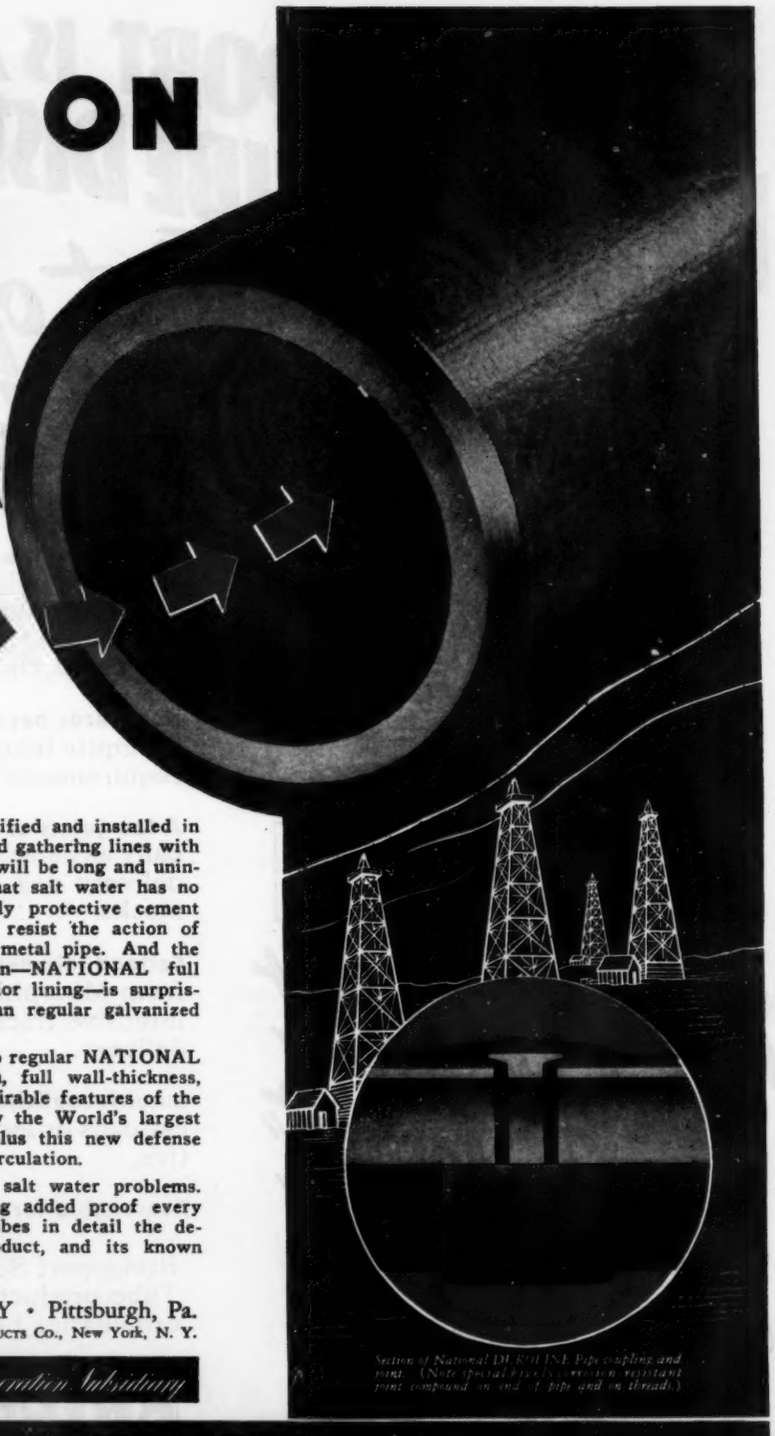


Fig. 7

BRING ON YOUR SALT WATER



DUROLINE PIPE can be specified and installed in salt water disposal systems and gathering lines with assurance that the service rendered will be long and uninterrupted—for tests have proved that salt water has no ill effect on Duroline. This highly protective cement lining was developed primarily to resist the action of certain waters that attack unlined metal pipe. And the cost of this superior combination—NATIONAL full weight steel pipe and special interior lining—is surprisingly low—only slightly higher than regular galvanized pipe.

Further, since Duroline is applied to regular NATIONAL Pipe, you obtain the full strength, full wall-thickness, convenient joints, and all other desirable features of the highest quality steel pipe, made by the World's largest maker of tubular steel products, plus this new defense against internal corrosion and tuberculation.

Duroline will help to solve your salt water problems. Outstanding installations are giving added proof every day. An interesting bulletin describes in detail the development of this remarkable product, and its known serviceability! Write for it today.

NATIONAL TUBE COMPANY • Pittsburgh, Pa.
Export Distributors—UNITED STATES STEEL PRODUCTS CO., New York, N. Y.

United States Steel Corporation Subsidiary

Section of National DUROLINE Pipe coupling and joint. (Note special rust-corrosion resistant joint compound on end of pipe and on threads.)

NATIONAL
DUROLINE PIPE

BRIDGEPORT IS A NATIONAL TUBE DISTRIBUTOR

"Out of Stock" or Mill Shipments

Call us "station to station" at anytime from anywhere.

"You Can Get It from Bridgeport"

We maintain large and well assorted stocks of National Tube Seamless and Lapweld Casing, Drill Pipe, Tubing and Line Pipe throughout Texas, Oklahoma and Kansas.

New yards have been established to promptly take care of emergency requirements in the active fields.

A few joints or full strings of practically any size or weight ready for delivery day or night from yard stocks.

Carload shipments to any destination from Memphis or Mill stocks—intensive tracer service—prompt delivery.

Inquiries solicited from any field, for carloads or less—prices competitive.

Reasonable terms.

Bridgeport Service on National Tube products pleases the discriminating buyer.

STORES and SALES OFFICES at

HOUSTON · TULSA · DALLAS · OKLAHOMA CITY · PAMPA · McPHERSON · RUSSELL
AND OTHER ACTIVE MID-CONTINENT AND GULF COAST POINTS

BRIDGEPORT MACHINE COMPANY
MANUFACTURERS DISTRIBUTORS
OIL DRILLING-FISHING AND PRODUCTION EQUIPMENT
GENERAL OFFICE AND WORKS: WICHITA, KANSAS

to move approximately 1¾ inches in order to take up the stretch in the rods and the movement of the tubing. To determine the rate at which the rods pick up the oil load it is necessary to work out by trial and error, the distance the polished rod must move in order to make the stretch out of the rods and tubing during this process of picking up the load.

In Figure 7, it is seen that it takes approximately 48 degrees movement of the crank before the rod string supports the entire weight of the oil column. Actually, it may take a slightly longer time because the dynamic oil load must likewise be considered, although in this case it has been assumed that all of the dynamic oil load is supported by the rods for reasons of simplicity. Likewise, the rods cannot immediately drop the oil load as they start on the downstroke, because when this load is dropped off the polished rod has to move down an amount equal to the combined stretch of the tubing and change in length of the rods. The curve for the oil weight on the rods, therefore, has the shape as shown in Figure 7. The dynamic oil load after the rods start down has been assumed to be taken by the tubing. The total polished rod load as shown is a combination of the rod weight, dynamic rod load, oil weight on the rods, and the dynamic oil load. The hypothetical dynamometer card is constructed by projecting the total polished rod load down to the polished rod position curve and thence to the load in 1,000 pounds.

The card as constructed for this case, where the many factors outlined before have been neglected, has the same shape as the card shown in Figure 5.

The other item which has a great influence on the size of the card is the free gas in the oil column. The presence of free gas in the oil column results in a reduction of the oil weight carried by the rod and also, probably changes the velocity with which the force can be transmitted through the oil column. It is probable that the velocity with which the force is transmitted will approach that of the velocity of sound in gas, which is of the order of 1,000 feet per second, as the amount of gas increases.

Figure 8 shows the construction of cards for a well with the same size pump, well depth, and polished rod travel, but with different speeds and strokes. The curves shown with the solid line are for a 50-inch stroke at 21.1 strokes per minute. It will be noted that while the time between the polished rod movement and the plunger movement remains the same, the angle through which the crank turns before the plunger starts to move increases in this case to approximately 17½ degrees. This is, of course, the result of the higher crank speed. This results in a part of the stroke during which there is no area to the card and which, of course, becomes ineffective in producing oil.

The second case which has been considered is the one with the dotted lines. In this case, the stroke has been kept the same but the speed has been increased 50 per cent, or is now 31.6 strokes per minute. The dynamic rod load is therefore increased 125 per cent. The time before the plunger starts to move is further increased to approximately 34 degrees of crank travel and results in a still larger lag. The total load curve for this condition shows only about 600 pounds increase in the peak load, although the dynamic load has increased approximately 2,000 pounds.

It is seen from the oil load curves, that the effect of increase in the speed results in a further lag in the picking up of the oil load and throws the position of the stroke, at which the entire oil load is supported by the rods, to a point at which the dynamic rod load becomes negative, and this will therefore tend to reduce the peak load. However, since the dynamic oil load is increased, the net result will be an increase in total load. It can be seen, that under conditions where the dynamic oil load is small, which would be the case where a large amount of gas was present in the oil column, the peak load may actually be reduced by increasing the operating speed.

The third case shown on this figure by the dot-dash lines is where half of the oil column has been assumed to be occupied by gas. In this case it has been assumed that the velocity of sound in the oil column remains the same as before, which is about 4,000 feet per second. The resulting card shows the peak load to occur before the middle of the stroke and the entire shape of the dynamometer card is seen to change.

The hypothetical dynamometer cards shown in Figures 7 and 8 have been constructed on very much simplified hypothesis, but it is believed that they explain to a great extent the form of the dynamometer card, and show why such a wide variation in the form of the card is encountered in practice.

To interpret a dynamometer card, one needs, in many cases, to be present when the card is taken, as often, a loose bearing, tight stuffing box, slipping clutch or belt, and improperly operated engine or other part of the rig will introduce variations in the card which cannot be explained unless one is present and knows the cause.

The gradual accumulation of information showing the effect of various operating conditions on the card will do much to increase the utility of dynamometer cards. While the pumping system appears to be rigid, it is actually relatively elastic and its operation must be analyzed by the mechanics of elastic bodies rather than by the mechanics of rigid bodies.

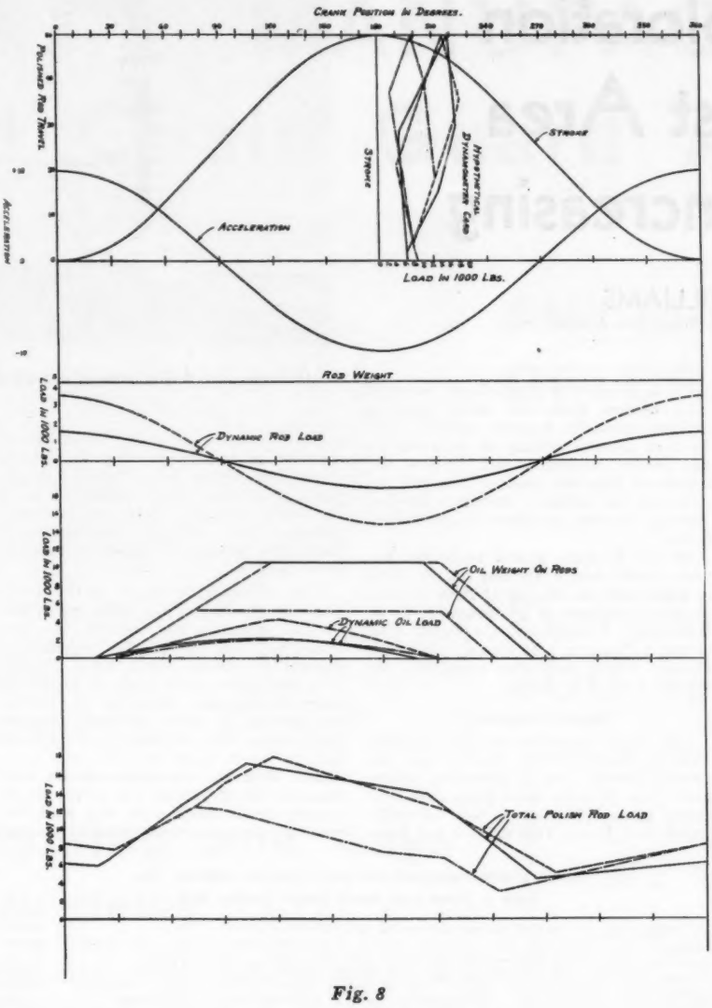
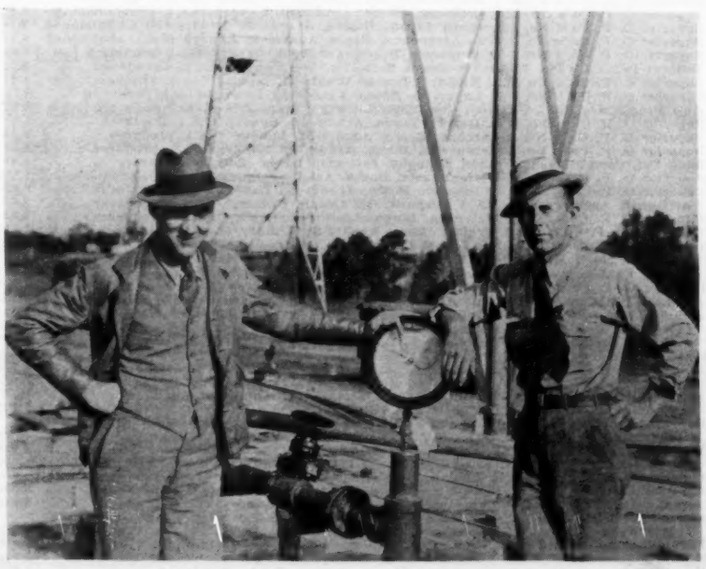


Fig. 8



Left to right: P. R. Turnbull, Tyler, Texas, and F. L. Nickle, London, Texas, assistant district petroleum engineers, Humble Oil & Refining Co.

Efficient Drilling Methods Developed in California

(Continued from Page 36)

model of the Dominguez Field of Los Angeles Basin has contributed to the remarkable drilling record recorded in that field during the past two years those not quite as retiring do not hesitate to give full credit where it is due. The Union has a complex problem on its hands in the Dominguez Field because nature has not run true to form in this field as far as the deeper zones are concerned. In most of the other fields of Los Angeles Basin the deeper zones were relatively uniform but at Dominguez the subsurface strata is so complex that it will require many more wells before the true status of conditions is determined. The Union has so systemitized its drilling operations that 6,100-foot wells in the Playa Del Rey Field of Los Angeles Basin are drilled from spud to completion in a little over four weeks. This is much faster than any work completed in the field up to the present.

Exploration Work

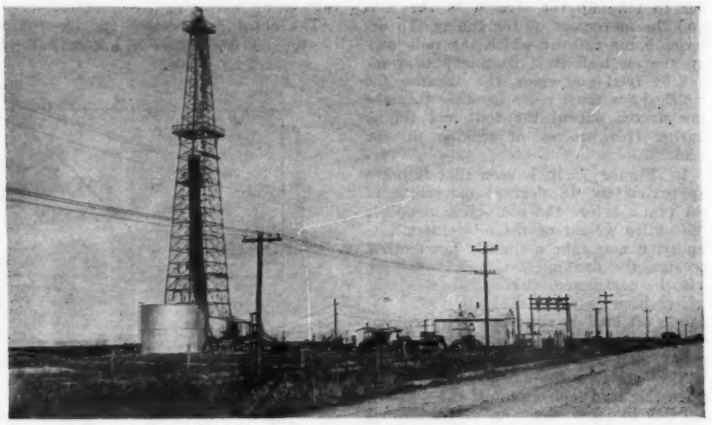
Geophysical research has reached such an important status in California that crews of the various companies are actually getting in each other's way. This is especially true of work in the San Joaquin Basin and in the area to the north. The Standard, Shell, General Petroleum, Associated, Ohio, Milham Exploration Co. and the Texas Co. are all running one or more seismograph crews. Up to the present, geophysical research has not proven especially adaptable to conditions existing in California although future work may change the aspect of the situation. A few minor discoveries have been found as a result of geophysical research in California but no big field has yet been discovered.

Within the past few weeks, the Standard Oil Co. has been shooting a substantial block of acreage north of Coalinga where the Western Gulf has tied up about 100,000 acres and will undertake a deep test if conditions warrant. The Standard has not limited its surveys to the Western Gulf's acreage but is shooting several thousand acres adjoining. If the company succeeds in locating a subsurface high, it will undoubtedly proceed with exploration work in the near future. The Western Gulf has drilled two dry holes in this area and while the second test did not show anything, the first revealed some rather favorable indications.

The Western Gulf has expended approximately $1,000,000 in the drilling of two deep dry holes including the cost of leasing and subsequent rentals and is consequently rather reluctant to pull out of the area especially in view of the favorable showings encountered in its first hole. This area is exceedingly flat and is consequently devoid of any surface indications of structure with the result that the company is shooting in the dark. The Western Gulf drilled one core hole after abandoning its second deep test in order to obtain a marker which might be correlated with data obtained by actual drilling. Scouts expect the Standard Oil Co. to drill a test in this general vicinity in the near future although the location of the projected test depends upon the results of the geophysical survey now being made.

Deeper Exploration in Gulf Coast Area Is Steadily Increasing

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal



Humble Oil & Refining Co.'s deep test at Roanoke, Jefferson County

HOUSTON, Tex., Mar. 4.—Exploration and development of deeper horizons on the Gulf Coast are assuming greater proportions than ever before, as is evidenced by the record of deep wells drilled during the past year. In that period not only were tests carried to new low levels but drilling became increasingly prevalent at such depths. Also, commercial production was established at new record depths and the number of fields producing from the deeper sands was swelled materially.

As a result of the deep development program carried on during 1934 and which still is under way, there now are 12 fields on the Gulf Coast producing from sands at depths below 7,000 feet. Of these, four fields have production below 8,000 feet, and, as this is written, an attempt is being made to bring in a well at Roanoke, Jefferson Davis Parish, from a sand at 9,325 feet.

Before January 1, 1934, the deepest commercial production on the Gulf Coast was at Buckeye, Matagorda County, where several wells had been completed in a sand at 7,800-7,900 feet. This field is owned and is being developed by the United North & South Development Co. Up until 1934 there were only five fields, including Buckeye, in which commercial production had been opened below 7,000 feet.

A reflection of the increasing activity in deep drilling is given in the fact that there now are more tests drilling below 9,000 feet than there were drilling below 8,000 feet a year ago. Although the Gulf Coast has just had its first 10,000-foot hole, this being Superior Oil Producing Co.'s No. 1 Martinez at Bosco, which was abandoned early this month at a total depth of 10,005 feet, a number of the 9,000-foot holes now are crowding close on the heels of the Bosco test and there is no doubt that 10,000 to 11,000-foot holes will become more common during 1935.

During 1934 there were 11 tests drilled to depths below 9,000 feet as against only four which were drilled prior to that year. Of the latter, two were put down in 1933, one in 1932 and the other in 1931. Of the 11 drilled or started during 1934, there are five still drilling while three of the remainder were abandoned only this month.

Not Localized

That this deep development is not localized is indicated by the fact that with the exception of three 9,000-foot holes at Roanoke no two of these tests are in the same field or area. One each is at Bosco, Gueydan and Buckeye with the remainder on miscellaneous wildcat prospects.

Including these 11 tests, 143 tests were drilled to depths below 7,000 feet during the past year. Of these 102 were below 7,500 feet; and 56 of these 102 were below 8,000 feet. Prior to January 1, 1934, only 81 tests had been drilled to depths below 7,000 feet with only 45 of these going below 7,500 feet, and only 22 of the latter going below 8,000 feet. From these records can be seen the trend toward deeper and deeper drilling. Only a few years ago a 7,000-foot test was looked upon as being very deep. Then, as such tests became more and more common, drilling gradually reached to 8,000 feet. In turn general drilling to such depths has become customary and, as now the 9,000-foot holes are passing from the unusual to the ordinary operators are beginning to think in terms of 10,000-foot holes.

Of the 45 tests drilled to depths between 8,000 and 9,000 feet during 1934 or which still are drilling at these depths, 21 are at Bosco, 3 at Roanoke, 2 at Dickinson, 1 each at Cleveland, Old Ocean, Cameron Meadows, Edgerly, Louise, Gillis, and the remainder on various wildcat prospects.

Biggest Grouping

The biggest grouping of deep drilling was at Bosco on the Acadia and St. Landry Parish lines in Louisiana where more than 35 wells have been drilled to depths below 7,500 feet or now are drilling at such levels. This drilling has been carried on there in the development of the various deep sands which have been proved productive below 7,800 feet. A dozen wells have been completed in a 7,800-foot horizon; there are two producers at 8,085 feet, while nine producers have been brought in from a sand at 8,600 feet.

Bosco is being developed by the Superior Oil Producing Co. with the Pure Oil Co. owning a half interest. The discovery well and first test in the area was brought in during April, 1934. It had been drilled to a total depth of 8,916 feet where casing was cemented on bottom and through a series of sands showing oil. Casing was perforated at 7,845-50 feet, in which sand the well was completed. With the completion of this well Superior Oil Producing Co. moved in on a mass development scale and with the heaviest of equipment obtainable started six tests simultaneously. Since then from 6 to 10 rigs have been running steadily.

The seven fields in which production below 7,000 feet was established as a result of deep drilling during 1934 include Bosco, Roanoke, Old Ocean, Dickinson, Van Vleck, Louise and Eureka. Of these Bosco, Roanoke, Dickinson and Old Ocean are producing from sands below 8,000 feet. Incidentally, all these fields, except Louise, were proven productive for the first time during 1934, and with the exception of Louise they have no production except that which is below 7,000 feet.

So far Old Ocean, in Brazoria County, Texas, has only one well, this being Harrison & Abercrombie's No. 1 Bernard, completed in November from a sand at a total depth of 8,651 feet. There are two wells at Dickinson, Galveston County, one at 8,025 feet and the other at 8,016 feet, these being brought in during October and November. A previous test blew out at 7,887 feet and was abandoned. The discovery well at Roanoke, Shell Petroleum Corp.'s No. 1 Kratzer, was completed in a sand at 8,682 feet. Since then a gasser has been brought in at 8,830 feet, and two other producers, one at 7,918 feet and the other at 7,830 feet. Prospects of production in a 9,300-foot sand are given in a well which Humble Oil & Refining Co. is attempting to bring in. This well, No. 3 DeVilbiss, was drilled to a total depth of 9,425 feet, where it tested salt water. It has been plugged to 9,325 feet where screen was set and it was swabbing at latest report.

Other Fields

Of the other new fields with production below 7,000 feet, Eureka, on the northeast outskirts of Houston, Harris County, has one well completed at 7,695 feet; Van Vleck, Matagorda County, has two wells, at 7,076 feet and 7,061 feet, respectively; while Louise has one producer at 7,143 feet. The latter field has production in shallower sands.

Indications of additional production below 9,000 feet have been given in a wildcat drilled by the Sun Oil Co. on the Nome prospect in northern Jefferson County. This test showed some oil in sand at 9,045 feet and screen was set but attempts to bring the well in were unsuccessful. As this is written efforts are being made to pull screen to deepen the hole.

As can be noted, most of the deeper drilling on the coast has been in Louisiana. Exclusive of Bosco, where a mass deep drilling program has been carried on, there is more deep development in that state. This is due to the fact that in the spread of development eastward in Louisiana the same corresponding producing horizons are found at much lower levels than in Texas and consequently require deep drilling to reach them. In turn due to the fact that development on the Louisiana Coast has not been so extensive in the past as on the Texas Coast, there is more virgin territory open for exploration there than on the Texas side.

DEEP TESTS DRILLED ON GULF COAST DURING 1934

9,000 to 10,000-Foot Holes Drilled During 1934

Well, field or district, county or parish, and status of well—	Total depth
*Superior O. P. Co.'s No. 1 A. Martinez, Bosco, Acadia-St. Landry (La.), abandoned	10,005
Shell Pet. Corp.'s No. 1 Jarnigan, Roanoke, Jefferson Davis (La.), drilling	9,909
*Texas Co.'s No. 6 St. Martin Ld. Co., 17-8s-7e, St. Martin (La.), abandoned	9,771
Magnolia Pet. Co.'s No. 1 E. Hebert, Bell E. Sur. 2, Jefferson (Tex.), abandoned	9,708
*Humble O. & R. Co.'s No. 1-B Industrial, Lunita, Calcasieu (La.), abandoned	9,532
United N. & S. Dev. Co.'s No. 2 Stoddard, Buckeye, Matagorda (Tex.), abandoned	9,457
Humble O. & R. Co.'s No. 3 DeVilbiss, Roanoke, Jefferson Davis (La.), P.B. 9,330, testing	9,425
Pure Oil Co.'s No. 6 Alliance Trust, Gueydan, Vermillion (La.), P.B. 4,560, sidetracking	9,379
Humble O. & R. Co.'s No. 1 Jarnigan, Roanoke, Jefferson Davis (La.), drilling	9,365
Humble O. & R. Co.'s No. 1 Long Bell, 11-5s-11w, Beauregard (La.), abandoned	9,302
Sun Oil Co.'s No. 1 Long, Nome, Jefferson (Tex.), fishing	9,045

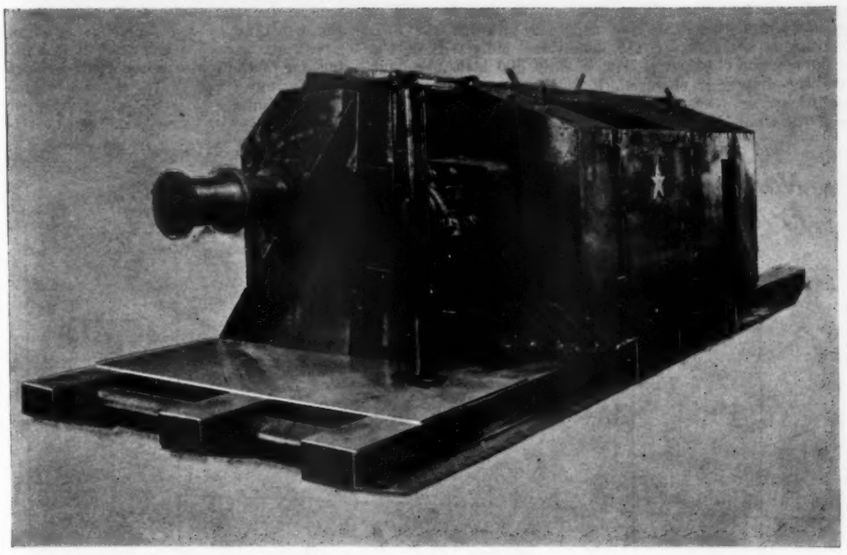
8,000-Foot Holes Drilled During 1934

Superior O. P. Co.'s No. 1 Hermandes, Bosco, Acadia-St. Landry (La.), per. 7,945-50, producing	8,916
Superior O. P. Co.'s No. 2 Comeaux, Bosco, Acadia-St. Landry (La.), abandoned	8,901
Gulf Ref. Co.'s No. 1 Sweet Lake, Hays, Calcasieu (La.), abandoned	8,900
Humble O. & R. Co.'s No. 1 Martin Kratzer, Roanoke, Jefferson Davis (La.), gasser	8,830
Superior O. P. Co.'s No. 1 A. Guilbeau, Bosco, Acadia-St. Landry (La.), abandoned	8,810
Superior O. P. Co.'s No. 1 Leonard Savoie, Bosco, Acadia-St. Landry (La.), abandoned	8,802
Superior O. P. Co.'s No. 1 J. S. Arceneaux, Bosco, Acadia-St Landry (La.), abandoned	8,771
Superior O. P. Co.'s No. 1 E. Comeaux, Bosco, Acadia-St Landry (La), producer	8,743
Federal Pet. Co.'s No. 1 Lutcher-Moore, 4-6s-12w, Beauregard (La.), abandoned	8,722
Superior O. P. Co.'s No. 1 L. Richard, Bosco, Acadia-St. Landry (La.), producer	8,718
Superior O. P. Co.'s No. 1 L. Lavergne, Bosco, Acadia-St. Landry (La.), producer	8,714
Gulf Prod. Co.'s No. 2-C Kirby, Cleveland, Liberty (Tex.), P.B. 5,893, producing	8,734
Superior O. P. Co.'s No. 1 R. Hebert, Bosco, Acadia-St. Landry (La.), producer	8,695
Superior O. P. Co.'s No. 2 Larcade, Bosco, Acadia-St. Landry (La.), producer	8,692
Superior O. P. Co.'s No. 2 Arceneaux, Bosco, Acadia-St. Landry (La.), producer	8,687
Shell Pet. Corp.'s No. 1 Kratzer, Roanoke, Jefferson Davis (La.), producer	8,682
Superior O. P. Co.'s No. 2 Iseringhauser, Bosco, Acadia-St. Landry (La.), producer	8,664
Superior O. P. Co.'s No. 1 L. Johnson, Bosco, Acadia-St. Landry (La.), producer	8,650
Harrison & Abercrombie's No. 1 Bernard, Old Ocean, Brazoria (Tex.), producer	8,651
Superior O. P. Co.'s No. 1 Malancon, Bosco, Acadia-St. Landry (La.), producer	8,620
*Superior O. P. Co.'s No. 1 Prejan, Bosco, Acadia-St. Landry (La.), producer	8,585
United N. & S. Dev. Co.'s No. 1 Unit 25, Buckeye, Matagorda (Tex.), abandoned	8,585
Texas Co.'s No. 1 Miami Corp., Cameron Meadows, Cameron (La.), drilling	8,567
Woodley Pet. Co.'s No. 1 Daigle, 27-7s-1e, Acadia (La.), abandoned	8,504
Superior O. P. Co.'s No. 2 M. Kahn, Bosco, Acadia-St. Landry (La.), drilling	8,501
Emerald Pet. Corp.'s No. 1 Bowie Lbr. Co., 53-15s-18e, Lafourche (La.), drilling	8,455
Humble O. & R. Co.'s No. 2 DeVilbiss, Roanoke, Jefferson Davis (La.), abandoned	8,423
Federal Pet. Corp.'s No. 1-B Lutcher-Moore, ———, Beauregard (La.), abandoned	8,415
Yount Lee Oil Co.'s No. 1 La. Sulphur, Edgerly, Calcasieu (La.), abandoned	8,410
Gulf Ref. Co.'s No. 1 Lutcher-Moore, 25-6s-12w, Beauregard (La.), abandoned	8,354
Pure Oil Co.'s No. 2 Stewart, Louise, Wharton (Tex.), P.B. 6,372, sidetracking	8,271
Superior O. P. Co.'s No. 1 A. Allemond, Bosco, Acadia-St. Landry (La.), drilling	8,221
Barnsdall Oil Co.'s No. 1 William Cypress, 38-14s-14e, Assumption, abandoned	8,155
Union Sulphur Co.'s No. 1 Barbe Estate, Gillis, Calcasieu (La.), abandoned	8,125
Superior O. P. Co.'s No. 1 M. Lavergne, Bosco, Acadia-St. Landry (La.), P.B. 6,268, redrilling	8,122
Humble O. & R. Co.'s No. 1 Industrial, 21-3s-5w, Allen (La.), abandoned	8,094
Geo. W. Strake's No. 1 Calcasieu Nat. Bank, 12-9s-6w, Jefferson Davis (La.), DST	8,091
Superior O. P. Co.'s No. 1 E. Leblanc, Bosco, Acadia-St. Landry (La.), producer	8,085
Superior O. P. Co.'s No. 1 Elize Mire, Bosco, Acadia-St. Landry (La.), producer	8,085
Superior O. P. Co.'s No. 3 Comeaux, Bosco, Acadia-St. Landry (La.), producer	8,070
Humble O. & R. Co.'s No. 1-B Maco Stewart, Dickinson, Galveston (Tex.), P.B. 8,025 producing	8,070
Pure Oil Co.'s No. 1 Shelor, Dickinson, Galveston (Tex.), producing	8,016
*Humble O. & R. Co.'s No. 1 Hass, wildcat, Evangeline (La.), abandoned	8,014
Hamill & Smith's No. 1 Faulk, Abbeyville, Vermillion (La.), abandoned	8,015
Wheeler and others' No. 1 Gabbert, 28-9s-7w, Calcasieu (La.), drilling	8,005

*Completed or abandoned in January, 1935.

STAR MANUFACTURES

Skid and Chain Guard Assembly



for

ANY MAKE OR TYPE OF DRAW WORKS

Everything Shipped to YOU ready to mount

Saves you hauling and days of unnecessary delay . . . .

We manufacture skid and chain guard assemblies for any make or type of draw works. When you buy from us, everything is delivered to you ready to put on bearing boxes and shafts, and connect up clutch and brake levers. This can be easily done on the derrick floor, occupying a period of time approximately the same as a regular rigging up job. Star skid and chain guard assemblies can be used with or without headboards. The chain guards are made of 3/16″ and 1/4″ steel plates. With a Star assembly you can save hauling and days of unnecessary delay.

In ordering, give us the make and model of your draw works and we will ship your unit ready to mount on boxes and shafts. Freight prepaid on 3 or more units in one shipment.

OTHER PRODUCTS WE MANUFACTURE

Cooling tower and circulating tanks for any size engine.

Unitized Draw Works.

Steel Tank Walks.

Engine Foundations.

Clean-Out Machines.

Pumping Units.

Tool Houses

Tool Boxes.

Sectional Type All-Steel Buildings.

STAR MANUFACTURING COMPANY
OKLAHOMA CITY

Joe A. Coy
Tulsa Representative
Phone 6-2241

Box 1106

3012 S. Stiles

Phone 2-1980
L.D. 701

Nomographic Chart Simplifies the Calculation of Pipe Line Problems

By H. V. BECK
University of Oklahoma

Nomographic charts are of particular value to the field engineer since it is often necessary that he make his calculations with very limited facilities. Charts of this type simplify calculations that would otherwise require the evaluation of factors to fractional powers, the conversion of observed data to the theoretical units on which the formula is based, and considerable numerical calculation after all the component parts of the equation have been evaluated. An accurately constructed chart will solve the equation within the limits of accuracy of the data and can be made to read in the commercial units of measurement; thus eliminating the conversion of Saybolt viscosity to kinematic viscosity and A.P.I. gravity to density. In some respects the results from the chart might be considered as more accurate than numerical calculations since the possibility for error in the calculations has been practically eliminated.

The equation on which this chart is based is one combining the equation for the friction factor and the flow equation into a single expression. This equation is a revised form of the equation derived by Mr. W. G. Heltzel in his excellent paper, "Derivation of Equivalent Length Formulae for Multiple Parallel Oil Pipe Line Systems," The Oil and Gas Journal, May 10, 1934. The equation arrived at by Mr. Heltzel is as follows:

$$P = 0.549 \frac{B^{1.726}}{D^{4.726}} s^{0.726} u^{0.263}$$

where,

P = pressure drop per mile, in lb. per sq. in.
B = flow in barrels (42 gal.) per hour.
D = actual internal pipe diameter in inches.
s = density of the fluid, in lb. per cu. ft.
u = absolute viscosity in English units.

This expression is for flow in the turbulent region where Reynolds numbers fall within the range 3,000-57,600. It is seldom in the commercial range of crude oil transportation that these limits are exceeded. If there is any doubt concerning the type of flow, the Reynolds number corresponding to the flow conditions may be checked.

The actual equation upon which this chart is based is an equivalent one which is of the following form:

$$P = 0.549 \frac{B^{1.726}}{D^{4.726}} s^{1.000} \left(\frac{u}{s}\right)^{0.263}$$

The equation was changed into this form since in this form it was possible to use a Saybolt rather than a kinematic viscosity scale. The ratio, $\frac{u}{s}$, being the kinematic viscosity which is a function of the Saybolt viscosity, t, according to the equation:

$$\frac{u}{s} = 0.00000237\,t - \frac{0.00194}{t}$$

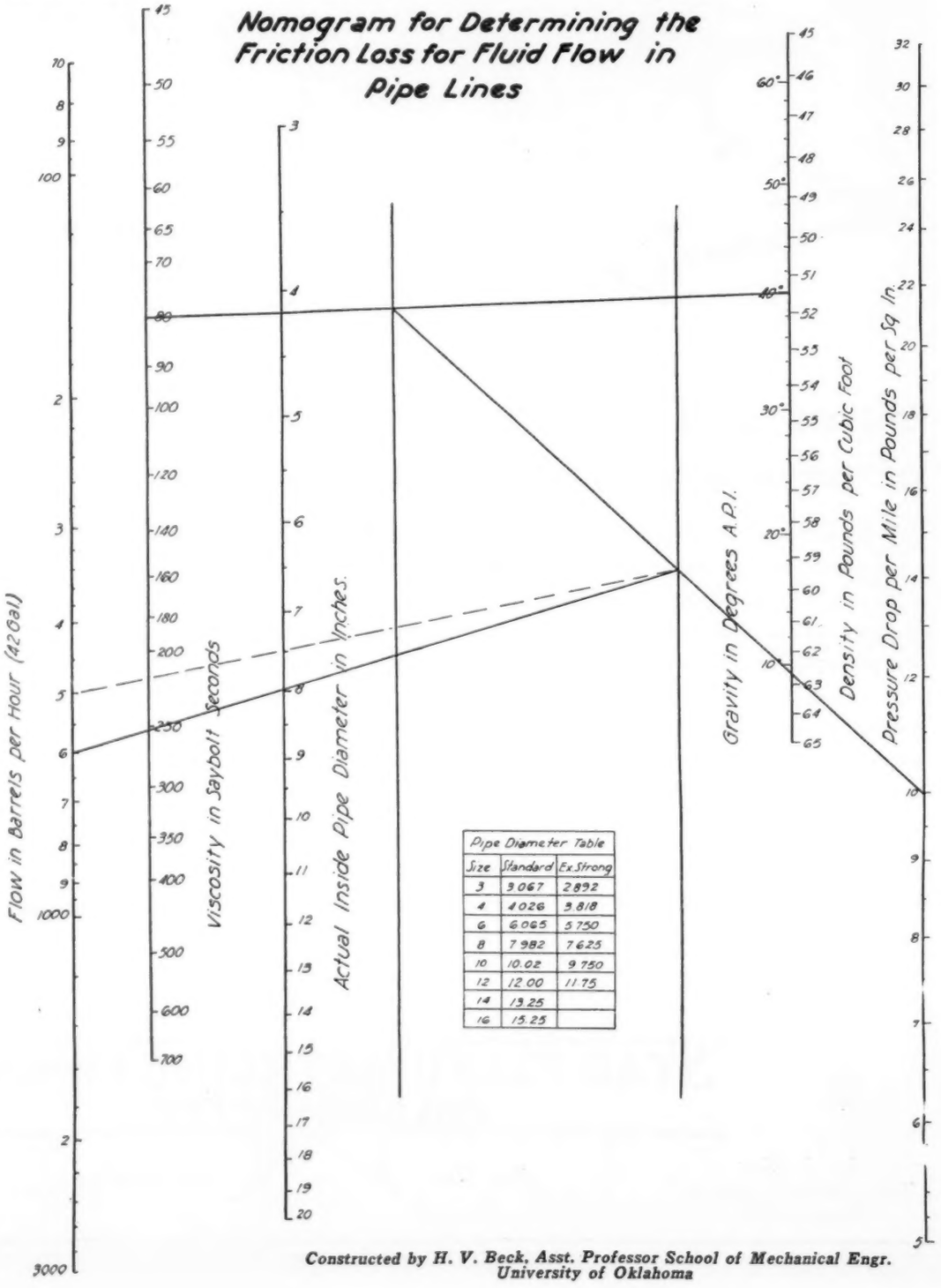
In construction, the chart was built about a kinematic viscosity scale which was later replaced by the Saybolt scale. In the same way, an A.P.I. gravity scale was made coincident with the density scale.

Flow calculations are made on the chart in the following manner. A straight line is drawn from the viscosity in Saybolt seconds to the gravity or density of the fluid being transported, intersecting the left dummy scale. From this intersection a straight line is drawn to the pressure drop per mile, intersecting the right dummy scale. A straight line is next drawn from the intersection with the right dummy scale through the actual diameter of the pipe and continuing to the flow scale. The point of intersection with the flow scale indicates the flow that should exist for the conditions observed and for the properties of the fluid being transported.

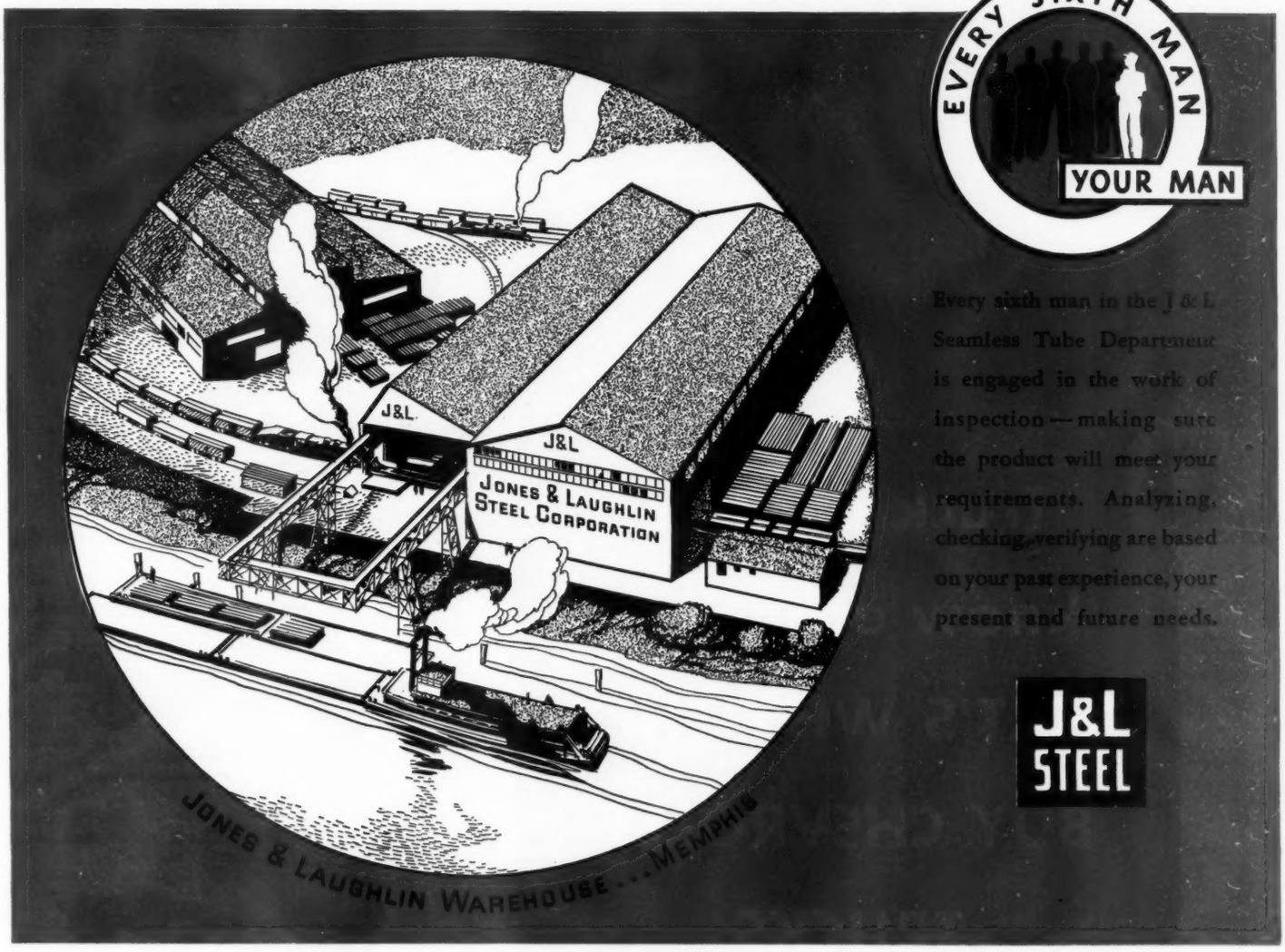
In addition to the use of the chart for calculating flow rates, there is another valuable application. It may be used to indicate the need for scraping the line. If, for the conditions indicated on the chart, a flow of only 500 bbls. per hour is observed, it is apparent that the average internal diameter has been reduced by paraffin formation to 7½ inches. This condition, as indicated on the chart by a dotted line, could be interpreted as being caused by a one-fourth inch layer of paraffin on the pipe walls.

It is apparent that chart calculations may be made in any order. For instance, the chart could be used to determine the required pressure drop per mile necessary for transporting fluid at a certain rate or for calculating the size of pipe necessary for transporting the fluid with a specified pressure drop. Many other uses for the chart will become apparent after one has become familiar with its operation.

Charts of this type are constructed on logarithmic scales, and have as their principle of operation, the addition and subtraction of logarithms. In these charts the constant in the equation is eliminated, account of it being taken in shifting one of the scales up or down before it is definitely fixed. After the scales have been definitely located, all subsequent calculations will contain the constant of the equation.


Nomogram for Determining the Friction Loss for Fluid Flow in Pipe Lines
Flow in Barrels per Hour (42 Gal)
Viscosity in Saybolt Seconds
Actual Inside Pipe Diameter in Inches
Gravity in Degrees A.P.I.
Density in Pounds per Cubic Foot
Pressure Drop per Mile in Pounds per Sq. In.
Pipe Diameter Table
Size | Standard | Ex Strong
3 | 3.067 | 2.892
4 | 4.026 | 3.818
6 | 6.065 | 5.750
8 | 7.982 | 7.625
10 | 10.02 | 9.750
12 | 12.00 | 11.75
14 | 13.25 |
16 | 15.25 |
Constructed by H. V. Beck, Asst. Professor School of Mechanical Engr. University of Oklahoma

J&L OIL COUNTRY SERVICE FAST . . . COMPLETE


EVERY SIXTH MAN
YOUR MAN
J&L
J&L
JONES & LAUGHLIN STEEL CORPORATION
JONES & LAUGHLIN WAREHOUSE . . . MEMPHIS
Every sixth man in the J & L Seamless Tube Department is engaged in the work of inspection — making sure the product will meet your requirements. Analyzing, checking, verifying are based on your past experience, your present and future needs.
J&L STEEL

Jones & Laughlin offers the fastest and most complete service on oil country tubular goods available in the Mid-Continent, Southwestern and Gulf Coast regions. Your requirements for drill pipe, casing, tubing and line pipe can be filled by immediate shipment from the J & L Warehouse at Memphis where large and diversified stocks are carried. All of this pipe is kept under cover to preserve its original condition. These stocks are augmented by stocks carried by J & L distributors at strategic points in the various fields. You will profit by using this fast, comprehensive and dependable service.

If you do not have a copy of the 88-page J & L Pipe Catalog, write for one today. No obligation.

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

J&L SEAMLESS

J&L PIPE

DRILL PIPE · CASING · TUBING · LINE PIPE

Truck owners know economy THAT'S WHY THEY BUY CHEVROLET TRUCKS

*1½-Ton Stake, $660
(131" Wheelbase)

*1½-Ton Chassis and Cab, $605
(157" Wheelbase)

*1½-Ton Platform, $630
(131" Wheelbase)

CHEVROLET Men who study haulage costs know that Chevrolet trucks are as outstanding in economy and durability as they are in price. Chevrolet trucks handle tough hauling jobs day after day at small operating cost, because they are built to Chevrolet's own high standards of quality in every part. The powerful six-cylinder valve-in-head engines are truck motors, especially designed to give sustained pulling power and to keep on working under the hard punishment of road and load. Features that assure stamina and long life are evident in every detail of the precision-engineered chassis. Chevrolet trucks are the *world's lowest-priced* trucks—because Chevrolet is the *world's largest builder* of trucks.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

Compare Chevrolet's low delivered prices and easy G.M.A.C. terms. A General Motors Value

*At left and above are list prices of commercial cars at Flint, Michigan. *Dual wheels and tires $20 extra. Special equipment extra. Prices subject to change without notice.*

Half-Ton Pick-Up, $465
(112" Wheelbase)

CHEVROLET TRUCKS

World's Lowest Prices

Oil Exchange Opens in New York With Trading in Crude and Gasoline

By C. O. WILLSON

NEW YORK, Mar. 5.—A few seconds after trading in gasoline and crude oil futures was opened here today on the Commodity Exchange, Inc., low octane U. S. Motor gasoline, which is the base grade, sold for June delivery at the Gulf Coast at 5.90 cents per gallon including 1 cent federal tax. The seller of the first contract of 42,000 gallons was Slaughter, Horne & Co., and the buyer was Canalizo, Witkin & Co., both well known brokerage houses. Other sales followed immediately some of which were for later delivery.

In an alternating trading arrangement with gasoline, crude oil was offered a few minutes later and the first sale for June delivery was made at $1.25 per barrel at the Gulf. The seller of the first contract of 2,000 bbls. of crude oil was Orvis Brothers & Co. and the buyer was Canalizo, Witkin & Co.

Both the gasoline and crude oil price openings for June delivery are above the prevailing spot market for prompt March delivery as quoted in trade publications. Trading in gasoline and crude oil futures opened with a generally weak commodity and stock exchange market. In the first hour and a half of trading, 27 contracts of gasoline were closed and 4 of crude oil in line with the general trend in commodities, prices declined from the opening in later transactions.

Dr. William E. Dunn, assistant director of the Bureau of Foreign and Domestic commerce of the Department of Commerce, Washington, D. C., told members of the Exchange and guests at the formal opening this morning that the Government was much interested in the possibilities of future trading in gasoline and crude oil from the standpoint of promoting and furthering domestic and foreign commerce.

"Anything that makes for stabilization of prices and means the removal of barriers to business and to the flow of commerce is of special significance to the Government at this time," Dr. Dunn said. "To what extent your trading activities in these commodities will affect foreign trading I have not been able to figure but I feel that it will have some effect. Although at present you will look to the domestic market more than the foreign market."

In his opening remarks, Jerome Lewine, president of the Commodity Exchange, said, "I am happy to present to you the most recent development among our commodity markets, namely that for gasoline and crude oil we feel proud that Commodity Exchange has taken the initiative in the development of futures trading in these petroleum products. The inauguration of these markets marks another important step in the progress of our exchange. It is our aim to provide a trading market which will afford hedging facilities for those commodities which are susceptible of such trading, and where an economic need for such hedging facilities for those commodities which are susceptible of such trading, and where an economic need for such hedging facilities appears.

Interior view of Commodity Exchange, Inc., where trading in crude oil and gasoline futures is being conducted

"The oil industry is one of the principal and basic industries of the nation. Its products have an estimated annual value of upwards of $13,000,000,000.

"The industry has for years been disturbed by the disrupting effect of uncontrolled price fluctuations. It is our belief that this futures market will tend to impart a greater degree of stability to price movements, and that through the use of this market for hedging purposes, the industry may obtain protection against adverse price movements. We sincerely hope that all factors of the industry, including producers, refiners, dealers and consumers will take advantage of these facilities.

"This market is not designed to supplant the marketing facilities now obtaining in the industry, but is intended to provide the industry with a market wherein it can obtain price insurance against adverse price movements."

Mr. Lewine introduced E. A. Canalizo, chairman of the petroleum committee of the exchange which has been at work for months perfecting plans for trading in gasoline and crude oil. Mr. Canalizo said:

"It is my firm conviction that the inauguration today of future trading in gasoline and crude oil marks a new era in the petroleum industry and that, in time to come, all of us assembled here will have reason to recall with satisfaction that we were present on this occasion.

"No more fertile field than this for the growth of a futures market is to be found anywhere. The petroleum industry is focusing its attention upon what we are doing here and, unless I am very much mistaken, the men who comprise its personnel, highly trained technicians, will grasp readily the advantages offered to them by this market in the way of protection.

"The industry is young and has prospered to an extraordinary degree, despite innumerable obstacles, because of the nobility of the commodity and the ability of the men in the industry. More problems have arisen in the past two years than at any other time in the history of this industry. New risks have been added and new devices for protection must be provided. It is just here that the Commodity Exchange finds its place in the picture, offering protection-insurance, if you like—against adverse price changes."

In fulfillment of every contract of gasoline, the seller must deliver 42,000 United States gallons (2 per cent more or less) on the basis of measurement at 60° F. Each contract unit must be made up exclusively of one of the deliverable grades specified in the by-laws of the exchange.

In correcting measured volumes for temperatures other than 60° F., the national standard petroleum oil tables, prepared by the U. S. Bureau of Standards and approved by the American Petroleum Institute, shall be used.

Tenderable Grades of Gasoline

Gasoline delivered upon Exchange contract shall consist of one of the following: U. S. Motor gasoline as per federal specification VV-G-101; motor gasoline as per federal specification VV-M-571.

No gasoline shall be tenderable that is below 55 octane number.

The base (contract) grade (No. 1) shall be U. S. Motor gasoline as per federal specification VV-G-101; within the range of 55-59 (inclusive) octane numbers.

Grade No. 2 shall be motor gasoline as per federal specification VV-M-571; within the range of 60-64 (inclusive) octane numbers.

Grade No. 3 shall be motor gasoline as per federal specification VV-M-571; with octane numbers of 65 and above.

When Grade No. 2 is delivered upon an Exchange contract the buyer shall pay to the seller a premium of one-quarter cent per gallon over the contract price; and when Grade No. 3 is delivered upon an Exchange contract the buyer shall pay to the seller a premium of one-half cent per gallon over the contract price.

Delivery Points for Gasoline

Gasoline may be delivered from any storage tank licensed by the Exchange but may not be delivered except from such storage tank. The board of governors, upon the recommendation of the committee on gasoline, may add to or eliminate delivery points at its discretion after notice to members.

Deliveries of gasoline made from licensed storage tank in the Houston-Galveston area, Texas, shall be made at the contract price. Deliveries from licensed storage tank at the Port of New York shall be made at a premium of five-sixteenths cent per gallon above the contract price.

On all deliveries of gasoline the documents required by the by-laws, rules and regulations of the Exchange for such delivery shall be delivered by the seller to the buyer in the city of New York.

Tax on Gasoline

All gasoline delivered against exchange contracts shall be delivered free and clear of any and all taxes, whether the same may be levied by the U. S. Government or any state or local government, unless such tax or taxes are by law required to be paid by the buyer.

Prices for gasoline on future delivery

Price Differentials, Premiums and Penalties

The following grades of crude oil may be delivered against Commodity Exchange, Inc. Crude oil contracts at differentials, premiums and/or penalties according to the following table:

	Texas ports	Cusning, Okla.	Differential for origin	Premium	Penalty
Mid-Continent (Kans. and Okla.)	36-36.9	36-36.9	At par*	A	X
East Texas	37 and up	37 and up	At par	None	X
East Central Texas	39-39.9	39-39.9	At par	A	X
Central Texas	36-36.9	36-36.9	At par	A	X
North Texas	36-36.9	36-36.9	At par	A	X
Gray County, Texas	36-36.9	36-36.9	—10c	A	X
Carson, Hutchinson and Moore Counties, Texas	40 and up	40 and up	—10c	None	X
Conroe, Texas	35-35.9	No	+4c	A	X
Gulf Coast—Texas and Louisiana	31-31.9	No	At par	B	Y
Crane, Upton, Crockett, Howard, Glasscock and Mitchell Counties	28 and up	28 and up	—17½c	None	X
Ector, Winkler and Pecos Counties, Texas, and Lea County, New Mexico	28 and up	28 and up	—12½c	None	X
CALIFORNIA:					
Long Beach	27-27.9	No	At par	C	Z
Seal Beach and Alamitos Heights	27-27.9	No	At par	C	W
Huntington Beach	26-26.9	No	At par	C	Z
Inglewood	24-24.9	No	At par	None	Z
Playa Del Rey	25-25.9	No	At par	D	Z
Athens, Rosecrans, Dominguez	28-28.9	No	At par	E	Z
Elwood Terrace	33-33.9	No	At par	F	Z
Santa Fe Springs	29-29.9	No	At par	G	Z
Midway, Sunset, Buena Vista Hills and Elk Hills	29-29.9	No	At par	H	Z
Kettleman Hills (North Dome)	35-35.9	No	At par	I	Z

Note: The grades mentioned in the above table are A.P.I. gravity specifications at 60° F.
*At contract price.

PREMIUMS AND PENALTIES IN CENTS PER BARREL

A—Premium of 2 cents for each degree above par grades listed above for each area up to 40.
B—Premium of 2 cents for 32-32.9; 4 cents for 33-33.9; 6 cents for gravities of 34 and up.
C—Premium of 3 cents for each degree above par grades listed above up to 30.
D—Premium of 3 cents for each degree above par grades listed above up to 26.
E—Premium of 3 cents for each degree above par grades listed above up to 32.
F—Premium of 3 cents for each degree above par grades listed above up to 37.
G—Premium of 3 cents for each degree above par grades listed above up to 38.
H—Premium of 3 cents for each degree above par grades listed above up to 33.
I—Premium of 3 cents for each degree above par grades listed above up to 39.
W—Penalty of 5 cents for each degree below par grade.
X—Penalty schedule for each degree below the par grade listed above, as follows: 3, 7, 11, 15, 19, 24, 29, 34, 39, 44 and 49 cents; and 5 cents for each degree lower thereafter.
Y—Penalty of 2 cents for each degree down to 28-28.9 gravity and as per schedule X for gravities below 28.
Z—Penalty of 4 cents for each degree below par grade.

contracts shall be in multiples of one one-hundredth of 1 cent per gallon. Contracts made on any other basis are prohibited.

Tenderable Grades of Crude Oil

(a) Crude oil delivered upon exchange contract shall consist of one of the grades mentioned in the accompanying table. The term "grade" as used in these by-laws and rules shall be deemed to cover both the characteristics of point of origin and A.P.I. gravity, and each of the crude oils according to point of origin having an A.P.I. gravity calling for a separate price differential under the provisions of said table shall be deemed a separate grade of crude oil.

(b) No crude oil of origin other than the points mentioned in said table shall be tenderable. Only legally produced crude oil shall be tenderable.

(c) The base (contract) grade shall be Mid-Continent (Oklahoma and Kansas origin) 36 to 36.9 A.P.I. gravity crude oil.

(d) Other tenderable grades of crude oil shall be deliverable against exchange contract at the price differentials specified in the table.

Delivery Points for Crude Oil

Crude oil may be delivered from any storage tank licensed by the Exchange, but may not be delivered except from such storage tank. The board of governors, upon the recommendation of the committee on crude oil, may add to or eliminate delivery points at its discretion after notice to members.

Deliveries of Mid-Continent (Oklahoma and Kansas origin) crude oil 36.0-36.9 A.P.I. gravity made from licensed storage tank in the Houston-Galveston area, Texas, or in the Cushing-Drumright area, Oklahoma, shall be made at the contract price. Deliveries of Mid-Continent crude oil of higher or lower gravity, and deliveries of other tenderable grades of crude oil shall be made at the differentials, premiums above or penalties below the contract price provided in the table in Section 353.

Trading in gasoline and crude oil on the exchange was inaugurated under the following conditions:

"That the first delivery month shall be June, 1935; that during March, 1935, trading shall be limited to the month of June, 1935, and the eight succeeding months; trading during April, 1935, shall be limited to June, 1935, and the nine succeeding months; trading during May, 1935, shall be limited to June, 1935, and the 10 succeeding months; and during June, 1935, and thereafter, trading shall be limited to the current month and the 11 succeeding months."

UPTOWN N. Y. OFFICES
Chrysler Building
Rockefeller Center

J. S. BACHE & CO.
Cable Address: "JULEBACHE," New York
42 Broadway, N. Y.

FOREIGN OFFICES
London, England
5 Bishopsgate
Toronto, Canada
Star Building

316 So. LaSalle St., Chicago

Orders Executed in
Gasoline and Crude Oil Futures
on the Commodity Exchange, Inc.

Branch offices at Kansas City, Tulsa, Ft. Worth, San Antonio and other principal cities

HIRSCH, LILIENTHAL & CO.

New York—London—Paris

Members of Leading Exchanges

Commodities—Stocks—Bonds

CANALIZO, WITKIN & CO.

Specialists in Commodities Trading

Correspondence invited on the use of the futures market in connection with "hedging".

Members
Commodity Exchange, Inc.

82 Wall Street
New York City

W. J. WOLLMAN & CO.
120 Broadway
New York

MEMBERS OF COMMODITY EXCHANGE, Inc.

Orders solicited in crude oil and gasoline.

Branch Office:
Philcade Building,
Tulsa, Okla.

Branch Office:
Baltimore & 11th Street,
Kansas City, Mo.

POST & FLAGG

Main Office:
49 Broad Street,
New York, N. Y.

New Orleans Branch:
504 Cotton Exchange Bldg.

Orders Executed
Gasoline and Crude Oil Futures
MEMBERS COMMODITY EXCHANGE, Inc.

OUR PAMPHLET—
"Futures Contracts
GASOLINE — CRUDE OIL"
Sent upon request

Orvis Brothers & Co
Established 1872
MEMBERS NEW YORK STOCK EXCHANGE
MEMBERS COMMODITY EXCHANGE, INC.
AND OTHER IMPORTANT EXCHANGES

60 Broadway — New York City

GRAY & WILMERDING

Members New York Stock Exchange, Boston Stock Exchange, New York Curb Exchange, Commodity Exchange Inc.

NEW YORK BOSTON HOUSTON

Facilities for Executing Orders in Gasoline and Crude Oil Futures

FINANCING THRU WAREHOUSE RECEIPTS

The financial service of public Warehousing is an important function of industry . . . The Warehousing Receipt is acceptable as prime collateral . . .

Our method of Field Warehousing brings the advantages of Warehousing right to your plant . . . Our Field Receipts are prime collateral.

Full details without obligation upon request.

TERMINAL WAREHOUSE CO.
Incorporated 1889
27th Street & 11th Avenue — New York, N. Y.

ORDERS EXECUTED
Gasoline and Crude Oil Futures
on Commodity Exchange

HUBBARD BROS. & CO.
Members New York Commodity Exchange, Inc.
66 Beaver Street, New York, N. Y.
Dallas Representative: O. B. Hart, Cotton Exchange Bldg.

Petroleum Futures

Literature on request

FENNER & BEANE

MEMBERS NEW YORK STOCK EXCHANGE

and other leading Exchanges

67 Broad Street, New York

TULSA • OKLAHOMA CITY • DALLAS • FORT WORTH

HOUSTON • SHREVEPORT

and other petroleum centers

Established 1856

H. HENTZ & CO.

60 Beaver Street, New York, N. Y.

We offer to Producers, Refiners and Consumers, our facilities for the execution of orders for the future delivery of

GASOLINE and CRUDE OIL

on the

Commodity Exchange, Inc.

Members New York Stock Exchange, Commodity Exchange, Inc. and other principal Exchanges

GASOLINE and CRUDE OIL FUTURES

We offer to producers, refiners and marketers our facilities for placing hedges on the

COMMODITY EXCHANGE, INC.

ABBOTT, PROCTOR & PAINE

Members New York Stock Exchange, Commodity Exchange, Inc., and other principal Security and Commodity Exchanges

120 Broadway, New York

CHICAGO PITTSBURGH BOSTON MONTREAL

OFFICES IN TWENTY-FOUR CITIES

S. HENLE, INC.

33 South William St., New York City, N. Y.

Cables: OILHENLE, NEW YORK

EXECUTE ORDERS IN FUTURE TRADING IN GASOLINE—CRUDE OIL

COMMODITY EXCHANGE, INC.

announces the inauguration of trading in

GASOLINE and CRUDE OIL FUTURES

as of TUESDAY, MARCH 5th, 1935

GASOLINE CONTRACT

CONTRACT UNIT:

42,000 United States gallons on the basis of measurement at 60 degrees Fahrenheit. Each contract unit must be made up exclusively of one of the deliverable grades specified in the By-Laws.

DELIVERABLE GRADES:

Base Grade (Exchange Grade No. 1): United States Motor Gasoline as per Federal Specification VV-G-101, within the range of 55-59 Octane numbers.

Other Deliverable Grades: Exchange Grade No. 2: Motor Gasoline as per Federal Specification VV-M-571, within the range of 60-64 Octane numbers, at ¼ of one cent per gallon premium above the contract price. Exchange Grade No. 3: Motor Gasoline of the same specification as Grade No. 2, with Octane numbers 65 and above, at ½ of one cent per gallon premium above the contract price.

DELIVERIES:

From storage tanks licensed by the Exchange in the Houston-Galveston area, Texas, at the contract price, and at the Port of New York at a premium of 5/16 of one cent per gallon above the contract price. A tolerance of 2% above or below contract unit is permitted.

QUOTATIONS:

Prices will be quoted in respect to the Base Grade, No. 1. Price fluctuations will be in multiples of one one-hundredth of one cent per gallon.

PRICE FLUCTUATION LIMITATIONS:

Trades for future delivery in any month shall not be made during any one day at prices varying more than one cent per gallon above or below the lowest price of the closing range for that month during the preceding business session on the Exchange.

MONTHS TRADED:

At the beginning trading will be conducted in contracts for delivery during June, 1935, and the eight subsequent months. On and after June 1st, 1935, trading will be conducted in contracts for delivery during the current month and the succeeding eleven calendar months.

TRADING HOURS:

From 10 A. M. to 3 P. M. on each business day with the exception of Saturday, when trading shall cease at 12:00 noon.

COMMISSION RATES:

(U. S. and Canada). Based upon a price per gallon.

(Per contract bought or sold)

	Members	Non-Members
Below 6c	$ 6.25	$12.50
From 6c to 7.99c incl.	7.50	15.00
From 8c to 9.99c incl.	8.75	17.50
From 10c to 13.99c incl.	10.00	20.00
From 14c and above	12.50	25.00

Outside the United States and Canada, a charge equal to the actual cost of cables with a minimum charge of $1.25 shall be added to the above rates.

CRUDE OIL CONTRACT

CONTRACT UNIT:

2,000 barrels of 42 United States gallons each on the basis of measurement at 60 degrees Fahrenheit. Each contract unit must be made up exclusively of one of the deliverable grades specified in the By-Laws.

DELIVERABLE GRADES:

Base Grade: Mid-Continent (Oklahoma and Kansas origin) 36.0-36.9 A. P. I. gravity.

Other Deliverable Grades: Texas, Mid-Continent and California oils, as specified in Section 353 of the By-Laws (the term "grade" covering both the characteristics of point of origin and A. P. I. gravity).

DELIVERIES:

From storage tanks licensed by the Exchange and located in the Houston-Galveston area, Texas, or in the Cushing-Drumright area, Oklahoma; at premiums above or discounts below the contract price, depending upon the grade delivered and the point of delivery (See Sec. 353 of the By-Laws). A tolerance of 2% above or below contract unit is permitted.

QUOTATIONS:

Prices will be quoted in respect to the Base Grade. Price fluctuations will be in multiples of one-quarter of one cent per barrel.

PRICE FLUCTUATION LIMITATIONS:

Trades for future delivery in any month shall not be made during any one day at prices varying more than 30 cents per barrel above or below the lowest price of the closing range for that month during the preceding business session on the Exchange.

MONTHS TRADED:

At the beginning trading will be conducted in contracts for delivery during June, 1935, and the eight subsequent months. On and after June 1st, 1935, trading will be conducted in contracts for delivery during the current month and the succeeding eleven calendar months.

TRADING HOURS:

From 10 A. M. to 3 P. M. on each business day with the exception of Saturday, when trading shall cease at 12:00 noon.

COMMISSION RATES:

(U. S. and Canada). Based upon a price per barrel.

(Per contract bought or sold)

	Members	Non-Members
Below $1.50	$ 6.25	$12.50
From $1.50 to $1.99¾ incl.	7.50	15.00
From $2.00 to $2.49¾ incl.	8.75	17.50
From $2.50 to $2.99¾ incl.	10.00	20.00
From $3.00 and above	12.50	25.00

Outside the United States and Canada, a charge equal to the actual cost of cables with a minimum charge of $1.25 shall be added to the above rates.

FOR FURTHER INFORMATION APPLY TO THE SECRETARY'S OFFICE

COMMODITY EXCHANGE, INC.

81 BROAD STREET, NEW YORK CITY

NEWS FOR PETROLEUM REFINERS

S.A.E. Issues Automobile Lubrication Data Forms

Motor vehicle lubrication data may now be compiled on S.A.E. standard forms, following the completion of a project initiated in the lubricants division of the Standards Committee of the Society of Automotive Engineers in January, 1933. The standard forms consist of a set of four sheets to be cited as "Motor-Vehicle Lubrication Data Form—S.A.E. Standard," for which the final draft was approved at the last annual meeting of the society in Detroit.

All manufacturers of motor vehicles receive requests many times during the year for data on the lubrication requirements of their new models. These requests come from oil companies, lubrication service data compilers, fleet operators, service stations, etc. Hitherto, any source which required data on a number of new models would receive a mass of unrelated facts, distinguished by its lack of uniformity. Usually it is necessary for each vehicle manufacturer to answer each inquiry separately, with consequent expenditure of time and money.

By obtaining a supply of the S.A.E. standard form to cover his new models, the motor vehicle manufacturer will be enabled to send each inquirer complete and standardized and accurate information at a minimum of cost, and with a minimum of trouble. The forms have been designed especially to be duplicated in quantity by any of the standard processes, such as blue printing, photostating, or lithographing. One completion of the master form for a particular model of vehicle will take care of the matter until that model is superseded.

The records of the S.A.E. Lubricants Division show that the suggestion which culminated in preparation of the forms originated with L. A. Danse, of the Cadillac Motor Car Co. The subdivision appointed to carry out the suggestion consisted of Dr. K. G. Mackenzie, chairman, Texas Co.; Sydney Bevin, then of the Tide Water Oil Co.; C. M. Larson, Sinclair Refining Co.; G. A. Round, Socony-Vacuum Corp.; E. W. Upham, Chrysler Corp.; H. C. Mougey, General Motors Research Laboratories, and A. L. Clayden, Sun Oil Co.

Bell Refining Co. to Expand Calgary Plant

CALGARY, Alberta, Mar. 2.—The Bell Refining Co. will construct additions to its present refining plant at Calgary which will double its capacity to a maximum of 1,500 bbls. of crude oil daily. According to announcement by Floyd J. Huff, refinery manager, the storage capacity will be increased by a 175,000-gallon tank, making a total storage capacity of 1,500,000 gallons, compared with 200,000 gallons when the plant commenced operations three years ago. Added equipment will include two new pipe stills, one of which is a semi-cracker designed for treatment of heavier grades of crude oil. Work on the new construction will commence immediately. The plant is taking deliveries from the Model, Spooner, Homestead and Mercury wells in Turner Valley and from the Gas & Oil Products, Ltd. absorption plant.

LEASES TEXANA PLANT

H. P. Sneed, trustee, has leased the Texana Refining Co.'s plant at Kilgore for five years and is planning to start operations at once.

Tercentenary Anniversary of American Chemical Industry Featured at Meeting

The chemical industries of America will celebrate the three hundredth anniversary of their founding this year, with events opening in New York April 22 at the eighty-ninth meeting of the American Chemical Society. Petroleum refiners due to their steadily increasing interest in the production and consumption of large amounts of chemicals are expected to be widely represented. The Manufacturing Chemists Association, the Synthetic Organic Chemical Manufacturers Association, and the chemical societies of the metropolitan district will also participate.

Science and industry will join in an exposition of chemistry's development since John Winthrop, Jr., first colonial governor of Connecticut, in 1635 mapped out a far-reaching program for the production of salt, iron, glass, potash, tar, black lead, saltpeter, medicines, copper, alum, and other chemicals. Previously Winthrop, son of the Pilgrim governor of the Massachusetts Colony, had imported apparatus, chemicals, and chemical books which formed the nucleus of the first chemical laboratory and library in this country.

At the tercentenary assembly, to be attended by more than 10,000 representatives of chemistry and the allied sciences, industry, and education, Winthrop will be heralded as the real founder of the nation's chemical industries, which have grown into giant industrial enterprises with an annual output running into billions of dollars.

Inventions, discoveries, and explorations in chemistry over the span of 300 years will be traced to show how infant industries have become the bulwark of national defense, the basis of modern industrial progress, and the source of a large and growing percentage of national wealth.

Francis P. Garvan, president of the Chemical Foundation and recipient of the Priestley Medal as "the greatest lay patron of chemistry," is honorary chairman of the New York Committee organizing the celebration. Prof. Arthur W. Hixson of Columbia University is general chairman.

A committee of the Manufacturing Chemists Association appointed to cooperate with the society in the tercentenary arrangements consists of E. M. Allen of New York, president of Mathieson Alkali Works; Lammot du Pont of Wilmington, Del., president of E. I. du Pont de Nemours & Co.; and George W. Merck of New York, president of Merck & Co.

Senator Pat Harrison of Mississippi and Representative James W. Wadsworth of New York will be among the speakers at a dinner meeting on Wednesday evening, April 24. On the same day a chemical industries symposium, planned to interpret the close relationship between the chemical industries and the national welfare, will be held. Thomas Midgley, vice president of the Ethyl Gasoline Corp., will deliver an address on "Chemical Developments in the Next One Hundred Years." William B. Bell, chairman of the Board of Directors of the American Cyanamid Co. will speak on "National Planning and the Chemical Industries."

Other themes at this symposium include: "What the American Chemical Industries Have Done and Are Doing for the Nation"; "New Foreign Problems confronting the American Chemical Industries"; "Scientific Foundations of the American Chemical Industries."

On Thursday, April 25, there will be a symposium on the economic problems of the chemical industry, with R. P. Soule, chemical economist of the Tri-Continental Corp., as chairman. "Machine Age or Material Age?" is one of the topics to be discussed.

"New materials rather than new machines are characteristic of the present era," the announcement points out. "The rise of the process industries in the post-war decade will be described, the discussion centering around synthetic fuels, building materials, rubber wrappings; the encroachment upon agriculture and the products of the farm; the realignment of industries; and the outlook for the future."

Depreciation and obsolescence charges under the new deal will be another subject of this symposium. The chemical industry, according to the announcement, is outstanding in high charges for depreciation and obsolescence. The chemists will discuss federal policy toward reducing corporate surpluses and increasing tax revenues, and will explain their attitude toward current and past depreciation, and obsolescence reserves.

The question of chemical prices will also come up, the discussion involving the trend of typical prices against the background of the general price structure, below both 1914 and 1926 levels. A protective tariff, the announcement says, has not increased prices, low prices resulting in spite of high wages. Other problems to be dealt with include prices vs. earnings, trend of prices in the future, elastic and inelastic markets for chemicals.

Sessions are scheduled by the society's 19 professional divisions. On Tuesday evening, April 23, the William H. Nichols medal of the New York section of the American Chemical Society will be bestowed upon Father Julius A. Nieuwland of Notre Dame University.

APPEAL PERIOD REDUCED

United States District Judge James of California entered an order recently shortening the time for counsel to prepare their appeals from his rulings in the litigation of the Richfield Oil Co. of California receivership. This action was taken following a petition by W. C. McDuffie, federal receiver for the company.

Nine appeals have been indicated on Judge Jame's approval of the report of Special Master W. A. Bowen and by the Government in its effort to protect its claim for $9,000,000 against the Richfield Co. for oil withdrawn from leases E, G and I in the Naval Oil Reserve in Kern County. Judge James notified counsel that they must file their records not later than March 15.

ALTITUDE TO SELL REFINERY

The Altitude Petroleum Corp. announces that its refinery located at Chanute, Kans., will be placed on public sale, March 25, 10 a.m., at the plant site. The 5,000-bbl. refinery has cracking capacity of 1,000 bbls. and is completely equipped for operation. It was formerly owned and operated by the Peerless Oil & Refining Co.

Recommend Dissolution Atlantic, Pacific Oil

KANSAS CITY, Mo., Mar. 2.—The Atlantic, Pacific & Gulf Oil Co. and all its five subsidiaries except one are hopeessly insolvent, E. E. Amick, temporary trustee, asserted in a statement filed with Judge Albert L. Reeves in Federal Court. He recommended the immediate liquidation of the parent company and all the subsidiaries except the Pennsylvania Consumers Oil Co.

The other subsidiaries are the Atlantic, Pacific & Gulf Refining Co., the Pennsylvania Petroleum Co., the Orient Petroleum Co. of Illinois, Inc., and the Plass Engineering Corp.

The oil group went into federal receivership in December, 1931, and was granted permission last June to attempt a reorganization under the recent amendment to the Federal Bankruptcy Law.

In amplifying his report, Mr. Amick listed the assets of the Pennsylvania Petroleum Co. for December, 1931,as $107,-939 and the liabilities as $22,808. Last June, when the reorganization plan was granted, the assets were $54,643 and the liabilities had grown to $81,448, he said, and at the end of last month the assets were $39,711 and the liabilities $82,766.

Mr. Amick recommended the service stations and bulk plants of the parent company be closed. He requested, however, that Judge Reeves withhold a liquidation order of the Atlantic, Pacific & Gulf Refining Co. until after other pending litigation had been disposed of, but that the four other concerns be liquidated at once.

The exception, the Pennsylvania Consumers Oil Co., can be successfully reorganized, Mr. Amick stated in his report. At his request Judge Reeves extended the date for submitting a plan for this reorganization to March 15.

Reopenings Expected in Colorado Refineries

A decision is expected within a few days in litigation over the Midland Oil & Refining Co. refinery just north of Denver in Adams County, which was heard this week in the district court at Brighton. Foreclosure proceedings were instituted in 1933 by the Walter S. Cheesman Realty Co. on a parcel of ground held by the refining company, but not the tract upon which the plant is located. Involved in the litigation are differences among stockholders under the regime of L. M. Hines. Colorado Midland Refineries, Inc., of which Bruce Sullivan is vice president and Warwick M. Downing are counsel, was organized some time ago and took over the refinery subject to the settlement of pending litigation. The plant is idle at present, but as soon as the litigation is settled the new interests are planning to resume operations.

The Sullivan-Downing interests also incorporated Fern Oil Co. in Wyoming the past week to operate the Fern refinery at Thermopolis, Wyo. The company has closed a deal for 100,000 bbls. of oil from the Waugh Dome, 20 miles northwest of Thermopolis. California Exploration Co. recently brought in the discovery well on the Waugh structure. Sullivan and associates also control the Black Mountain Pool in the Thermopolis district. Oil will be trucked from the Waugh Dome and shipments will begin as soon as the road is completed. It also trucks oil from the Black Mountain Field.

NATURAL GASOLINE MANUFACTURE

Better Demand Anticipated for Premium Gasoline

A bigger market for premium gasoline is predicted by Bruce Barton, who, in "The Ethyl News", publication of the Ethyl Gasoline Corp., owned jointly by General Motors Corp. and the Standard Oil Co. of New Jersey, says that "in 1935 the average American is about to start his return to normalcy."

"The average American is normally interested in quality," Mr. Barton declares in a discussion of "What's Normal." "He is a spender rather than a saver—as contrasted with the people of the Old World. Give him only a glimpse of better times and he promptly sheds the habit of penny-pinching imposed on him by the depression. He wants the best and is willing to pay the price.

"There are definite signs that he is buying more automobiles, putting back the telephone he had to take out, reinstating his life insurance, using more electricity. He is going to be in the market again for the best product in every line."

Mr. Barton relates that back in the depression year of 1920 he was sent to Detroit by a magazine to interview Henry Ford. "It had been reported in Wall Street that Mr. Ford was about to go busted," Mr. Barton continues. "I expected to find him harassed and nervous. Instead, he seemed to be perfectly serene.

"We spent the whole day in leisurely conversation. Mr. Ford said: 'We have put the United States on wheels, and do you suppose for one minute that it is going to be content to walk again?'

"A little later Mr. Ford added: 'People ask when are we going to get back to normal? What's normal? That's what I want to know. Tell me what's normal, and I'll give a guess as to when we will get back'."

Mr. Barton added that if he were to attempt to answer Mr. Ford's question he would say something like this:

"The average American is normally optimistic. He has grown up in a country where boys start with nothing but health and courage and win fortune and reputation. He is trained to believe that the future is going to be better, not worse."

Natural Gasoline Prices Do Not Follow Spot Market for Refinery Motor Fuel

Manufacturers and brokers of natural gasoline have had the desire to shape their practices so that the market for their products would follow the trend of Mid-Continent refinery gasoline prices. They have made a general practice of contracting to supply various grades of natural gasoline at a fixed differential above or below the spot price for certain grades of refinery gasoline for many years but the spot market for natural gasoline does not follow any such fixed relationship with the spot price for refinery gasoline as may be seen in the following graph. Here a detailed inspection of the price trends for natural and refinery gasoline reveals many inconsistencies, a good example of the lack of agreement being shown in the trend of prices on these commodities over the past month. Middle bracket U. S. Motor refinery gasoline has had a consistent rise from 3½ cents on February 1 to 4⅜ cents on March 1 while third grade refinery gasoline has remained the same at 3¼ cents. In this same period 26-70 natural gasoline has dropped from 3 cents on February 1 to 2½ cents on March 1, and the market now appears weak.

Other inconsistencies may also be noted in each of the three years of spot prices reflected by the graph and this fact is emphasized when it is noted that on November 1, 1933, 27-70 natural was quoted ⅜-cent above the regular grade of U. S. Motor refinery gasoline while on July 1, 1934, the same grade of natural sold for 3 cents less than the same grade of refinery gasoline. Stated in another way, one could have traded regular refinery gasoline and 26-70 natural almost evenly gallon for gallon on November 1, 1933, but eight months later it would have been necessary to trade three gallons of natural for one gallon of regular grade refinery gasoline to reflect the quoted spot market for the two commodities.

These facts were brought out in a study made here to determine whether a practice should be made of comparing the trend of prices with regular grade refinery gasoline or third grade refinery gasoline and it becomes apparent that a choice can not be based upon any similarity of price trends in either case.

Those who advocate comparing 26-70 spot prices with regular refinery gasoline point out that the latter grade requires much more natural gasoline for blending than the low grade of refinery gasoline.

Those who feel that the pulse of the refinery gasoline price is better reflected in the third grade quotations say that it should serve as the basis for comparison. The diverging market trends in both instances probably explains why many contracts for the sale of natural gasoline are simply based upon the spot market as reflected in published quotations and no reference is made to refinery gasoline prices.

If a contract for natural calls for deliveries over a long period of time it must take into account season variations in price which are not so pronounced in the case of either of the refinery gasoline quotations. If the refinery quotations are to be taken as a basis, it is customary to choose a price differential that will equalize these season trends, but the choice of an equitable differential in advance is a very difficult undertaking.

In working out contracts covering 1935, manufacturers have been less willing to give a wide price concession for they have felt that 26-70 natural will come close to following refinery gasoline prices throughout the year and some have felt that over the last half of 1935, natural will sell for a substantial premium above the third grade refinery price. Some have gone so far as to predict a long period of premiums above the regular refinery gasoline.

Time alone can tell just how these predictions will work out but it is agreed by manufacturers and buyers alone, that natural gasoline stands a better chance of holding its market level near that of refinery gasolines during 1935 than was possible during any of the past five years.

December Natural Makes 16 Per Cent Price Gain

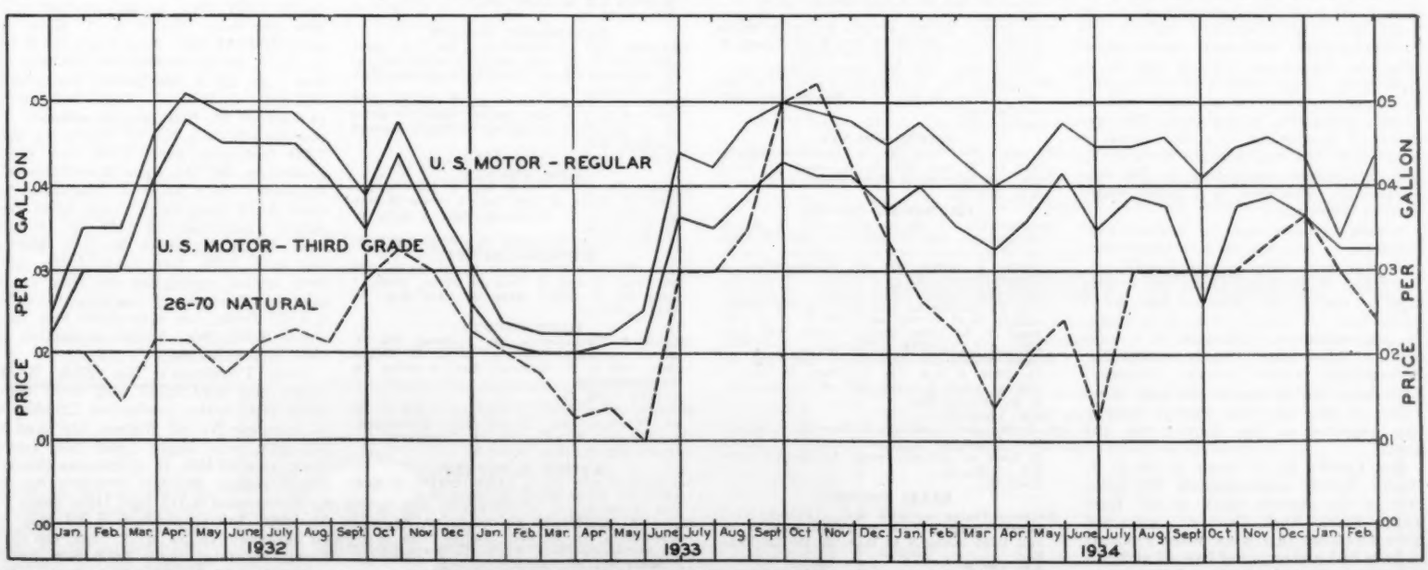
Wholesale prices of commodities for the month of December, 1934, increased generally over November prices. California natural remained throughout December at 6½ cents the same price as prevailed during November. The California market is decidedly stronger than a year previous, however, as natural sold at 5 cents throughout December, 1933. California natural shows a greater price stability than Oklahoma as a rule. Natural gasoline wholesale prices in Oklahoma finished stronger in December than in November, but showed a decline from the average price during December, 1933. A gain of 16 per cent was made in the price over November. Natural generally fared better than refinery gasoline. Oklahoma showed no monthly gain and California gasoline declined .4 cent from November.

The overall price of petroleum products suffered a slight decline. Index numbers based on 1926 prices as 100, showed petroleum prices at 49.8 as compared to 50.5 for November, 1934. The following table is taken from data compiled by the United States Department of Labor:

	Average wholesale price		
	Dec., 1934	Nov., 1934	Dec., 1933
Natural gasoline:			
Oklahoma	.036	.031	.039
Fuel oil, refinery:			
Oklahoma, per bbl.	.750	.750	.662
Pennsylvania, per gal.	.036	.036	.040
Gasoline, per gal., refinery:			
California	.061	.065	.058
North Texas	.045	.046	.046
Oklahoma	.046	.046	.050
Pennsylvania	.047	.049	.054
Kerosene, refined, per gal.:			
Standard, New York	.058	.053	.055
Water white, refinery	.046	.048	.052
Petroleum, crude, per bbl., well:			
California	.730	.730	.730
Kansas-Oklahoma	.940	.940	.940
Pennsylvania	2.033	2.283	2.370

ADD TO CRESCENT PLANT

The Eason Oil Co. has ordered two 230 H.P. Clark engines for its natural gasoline plant in the Crescent, Oklahoma Pool and when installed will permit the plant to process 8,000,000 feet of gas daily. The installation of foundations and auxillary equipment is progressing and operation of the two new units is expected within the next two weeks.



Relation of refinery prices for Regular and Third Grade U. S. Motor Gasolines and 26-70 Natural Gasoline, over a three-year period. Prices shown are Group 3 lows quoted as of the first of each month

Cherokee County Test Most Interesting of Week; Scramble for Connections in East Texas Field

By L. E. BREDBERG

DALLAS, Tex., Mar. 4.—Of the five locations announced for wildcat tests in the East and East Central Texas districts during the week, probably T. J. Wood and others' No. 3 New Birmingham Development Co., 1,320 feet from the south and 150 feet from the east lines of a 160-acre tract in the Levi Jordan Survey, northeast of the discovery well, known as the Rusk discovery, in Cherokee County, is the most interesting. The area has been defined to the south and southwest, but has a chance to run to the northwest, north, northeast and east.

Much cash was expended in this area and county soon after the showing was made in the Rusk discovery, one company spending over $500,000 on a trend play to the northeast and north. So far this company has not drilled a test on any of the acreage purchased, and if a test to the north of the discovery, or the present new location does not prove a producer, all those leases will probably be cancelled, as will many others.

Ponta Oil Co. has made location and is moving in material on the C. W. Dardy tract, in the Cyrus Parks Survey, about 2½ miles south of Summerfield, in Cherokee County.

Simms Oil Co. and others have material on the W. H. Goolsby farm, 4 miles east of Teague in Freestone County, for a wildcat Woodbine sand test, as will be Hill and Hill's No. 1 J. J. Phillips, in the James M. Moore Survey, 5 miles south of Winnsboro in Wood County.

Humble Oil & Refining Co., which has shown considerable interest in a "play" west of the fault line, in Hill and McLennan Counties, is drilling below 550 feet on the O. Heitman farm in the J. N. Smith Survey, 2 miles south of West in McLennan County.

May Prove Pool

In Gulf Production Co.'s No. 1 Davey and Royall gas discovery well, in the Camp Hill area, Anderson County, which last week was making 2 bbls. of distillate per hour with the gas curtailed to 500,000 feet per day, the gas going to a second test now being drilled in the area about 1 mile south, the distillate has changed to a dark green oil which tests 54 gravity, which makes the area now appear as practically sure of proving an oil pool. This showing of oil, in what was first considered only a gas producing area, will lend much importance to the second test on the M. J. Ross farm, in the Robert Erwin Survey. It is now coring below 4,657 feet in chalk. Elevation is 484 feet. The gas discovery was drilled to a total depth of 5,969 feet, but was plugged back to 5,059 feet before completing in the sub-Clarksville. The area is 7 miles southeast of Palestine.

Giving consideraiton to bottom hole pressures is expected to give better control over salt water encroachment.

Pioneer Exploration Co.'s No. 1 Gentry, in the C. M. Walters Survey, 3 miles west of Athens, Henderson County, was abandoned this week at a total depth of 4,254 feet. This is another discouragement, where several "dusters" have been drilled during the past three years. It was the only wildcat completion reported in the district for the week.

Ben Lamb's No. 1 Leath, in the L. J. Dooley Survey, approximately 3½ miles east of the eastern flank of the East Texas Field, Rusk County, attracted more attention this week when reported to have had a showing of live oil at 3,825 feet in sand. A check showed live green oil on the slush pit, with the well shut in waiting for casing, the owners said to be acquiring more acreage around the test which has had former reports of oil and gas showings.

McGlothlin and others' No. 1 H. A. Barnett, in the Elisha Powers Survey, in the southeastern part of Navarro County, was reported discouraging, having cored from 3,600-10 feet, recovering porous salt water sand.

Marydun Oil & Gas Co. of Oklahoma City and Sterling Oil & Gas Co. are preparing to spud their No. 1 Connor in the M. W. Mathews Survey, about 4½ miles northwest of Daingerfield in Morris County. The two companies hold around 8,400 acres in this area.

Van Field

On March 1 the Van Field was placed under a new proration method by the Railroad Commission, allocating production on the basis of acre feet of Woodbine sand and the average weighted reservoir pressure, each well to receive its daily allowable on the basis of 50 per cent for each factor. The per well allowances will be affected little, except for a few wells. The former method was based on the number of acre feet of Woodbine sand figured to each well, giving consideration to no other factor. The field covers approximately 4,400 acres, with 457 wells producing in the Woodbine sand zone, and is considered as containing approximately 1,167,000-acre feet of Woodbine formation above subsea datum of 2,500 feet, which is held to be the danger level for bottom hole water over the larger part of the structure.

EAST TEXAS FIELD

Major pipe line companies and other purchasers in the East Texas Field are fairly "wrestling" for connections. One company is known to be giving drilling contracts to contractors who can assure connections to wells in which the contractors are interested. Another company is known to have given a trucking contractor trucking contracts in exchange for connections to his wells.

Connections are being terminated at will in the field, connections being taken over by some other company that has made a deal with the owners. Some of the major pipe line companies disconnected from operators' leases last summer believed to be running "hot" oil, but now these connections are being solicited. As soon as results of the Federal Tender Board's actions are felt connections will be more at a premium. The demand for the oil is increasing.

The East Texas allowable as of March 1 was 441,013 bbls., with 16,149 wells producing, 2,340 classed as marginal. The total hourly potential was figured at 12,038,466 bbls. There were 112 locations staked in the field this week and 77 wells completed.

EAST TEXAS COMPLETIONS

Gregg County

Atlantic's No. 25 Turner, top sand 3,580 feet, total depth 3,650 feet, initial production 140 bbls. per hour. J. G. Beard's No. 7 Farrell, top sand 3,597-3,606 feet, total depth 3,610 feet in shale, initial production 40 bbls. per hour. Castlett and others' No. 1 Trotman, top sand 3,495 feet, total depth 3,515 feet, initial production 50 bbls. in 30 minutes. Empire Gas & Fuel Co.'s No. 10 A. Green, top sand 3,592-3,645 feet, total depth 3,647 feet in shale, initial production 32 bbls. in 15 minutes. F. H. E. Oil Co.'s No. 4 J. M. Christian, top sand 3,637 feet, total depth 3,680 feet, initial production 31 bbls. in 15 minutes on 2-inch tubing. Gulf Production's No. 7 T. Clemons, top sand 3,680 feet, total depth 3,706 feet, initial production 60 bbls. per hour through 2-inch tubing. Humble Oil & Refining Co.'s No. 35 Hughes, top sand 3,669 feet, total depth 3,685 feet, initial production 109 bbls. per hour.

Lechner & Hubbard's No. 8 J. G. McGrede, top sand 3,628 feet, total depth 3,648 feet, initial production 50 bbls. in 30 minutes. Magnolia Petroleum Co.'s No. 25 L. J. Everett, top sand 3,633 feet, total depth 3,641 feet, initial production 105 bbls. per hour; No. 24 J. W. Free, top sand 3,644 feet, total depth 3,649 feet, initial production 100 bbls. per hour. Roeser & Pendleton's No. 7-B Nicholson, top sand 3,594 feet, total depth 3,604 feet, initial production 60 bbls. per hour. Selby & Lewis' No. 16-D C. Snavely, top sand 3,595 feet, total depth 3,597 feet, initial production 33 bbls. in 30 minutes. Shell Petroleum Corp.'s No. 22 G. W. Richey, top sand 3,547 feet, total depth 3,573 feet, initial production 35 bbls. in 30 minutes. Simms and Stanolind's No. 34-B Flewellen, top sand 3,673 feet, total depth 3,706 feet, initial production 70 bbls. per hour.

Sinclair Prairie's No. 39 Moncrief, top sand 3,554 feet, total depth 3,600 feet, initial production 32 bbls. in 15 minutes; No. 40 Moncrief, top sand 3,563 feet, total depth 3,614 feet, initial production 37 bbls. in 15 minutes; No. 42 Moncrief, top sand 3,556 feet, total depth 3,607 feet, initial production 35 bbls. in 15 minutes; No. 43 Moncrief, top sand 3,563 feet, total depth 3,610 feet, initial production 38 bbls. in 15 minutes.

Barnsdall's No. 11 J. Douglas, top sand 3,654 feet, total depth 3,656 feet, initial production 20 bbls. in 15 minutes. Gulf Production Co.'s No. 41 C. Brown, top sand 3,490 feet, total depth 3,516 feet, initial production 75 bbls. per hour; No. 73 S. Hilburn, top sand 3,550 feet, total depth 3,577 feet, initial production 69 bbls. per hour; No. 8 A. A. King, top sand 3,546-81 feet, total depth 3,583 feet in shale, initial production 20 bbls. per hour; No. 22 A. Muckelroy, top sand 3,571 feet, total depth 3,586 feet, initial production 32 bbls. in 30 minutes. Invincible Oil Co.'s No. 27 Weiss, top sand 3,618 feet, total depth 3,647 feet, initial production 90 bbls. per hour. Magnolia Petroleum Co.'s No. 4 J. Blackman, top sand 3,614 feet, total depth 3,636 feet, initial production 22 bbls. in 15 minutes; W. H. Matthews' No. 3 L. Martin, top sand 3,710 feet, total depth 3,714 feet, initial production 60 bbls. in 45 minutes. Producers Investment Co.'s No. 4 J. A. Butts, top sand 3,550 feet, total depth 3,600 feet, initial production 40 bbls. in two hours.

Shell Petroleum's No. 22-A B. F. Laird, top sand 3,531 feet, total depth 3,558 feet, initial production 21 bbls. in 15 minutes; No. 43 Watson, top sand 3,568 feet, total depth 3,652 feet, initial production 18 bbls. in 15 minutes through 2-inch tubing. Sinclair Prairie's No. 50 Cole, top sand 3,578 feet, total depth 3,582 feet, initial production 30 bbls. in 15 minutes; No. 51 M. T. Cole, top sand 3,604 feet, total depth 3,608 feet, initial production 25 bbls. in 30 minutes; No.

(Continued on Page 59)

East Central Texas Wildcats

Week Ending March 2

ANDERSON COUNTY

Gulf Prod. Co.'s No. 1 O. G. Rogers, 330 ft. out of NW cor. of D. Parker Sur., 5 miles SW of Elkhart.
Derrick.

Gulf Prod. Co.'s No. 1 M. J. Ross, 1,770 ft. from SW and 1,370 ft. from NW lines of Robt. Erwin Sur.
Elev. 484 ft.; Pecan 3,766-3,970 ft.; S.D. 4,609 ft.

J. W. Luttes' No. 1 C. McKee, 2,640 ft. from N line of lease and survey and 330 ft. from W line of McKey 800-ac. tract.
Derrick.

Tide Water Oil Co. et al's No. 21-A Wells, 4,079 ft. N and 2,333 ft. W of lease, S. Edmondson Sur. (Trinity test).
Top Austin 3,170 ft.; drlg. 4,876 ft.

Worsham's No. 1 Wathen, 1,400 ft. S and 467 ft. from E line of B. Towles Sur., NW of Cayuga.
Derrick.

BOWIE COUNTY

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 600 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
S.D. 200 ft.

CHEROKEE COUNTY

Jacksonville O. & G. Co.'s No. 1 H. D. Henderson, 660 ft. from N and W lines of 40-ac. tract out of Tankersley 104-ac. tract, 5 miles NE of Jacksonville, J. Pineda Sur.
S.D. 693 ft.

E. M. Thomason et al's No. 1 Addis Estate, 250 ft. S of survey and 150 ft. E of railroad, J. T. Jones Sur., 6 miles NW Alto.
Elev. 471 ft.; drlg. 4,375 ft.

Wilson Stubbs Oil Co.'s No. 1 Rowborts, 450 ft. from S line, 150 ft. from W line of 100-ac. tract, 2 miles SW of Jacksonville, J. D. Wolfin Sur.
S.D. 1,563 ft.

T. J. Woods et al's No. 3 New Birmingham Dev. Co., 1,320 ft. from S and 150 ft. from E lines of 160-ac. tract, L. Jordan Sur., NE of No. 1.
Material.

ELLIS COUNTY

Beckner-Finley et al's No. 1 Coker, 2,900 varas along S line of grant from river and 1,700 varas N at R/A, R. De La Pena Sur.
S.D. 527 ft.

FREESTONE COUNTY

Amerada Pet. Corp.'s No. 1 Burk, 851 ft. S 125 ft. W of river, E. G. Rector Sur.
Top Austin 3,175 ft.; drlg. 3,588 ft.

Hoover et al's No. 1 McFall, 150 ft. S and W lines, S. Garrison Sur., E of Mexia.
Location.

Simms Oil Co. et al's No. 1 W. H. Goolsby, 330 ft. out of NW cor. of 50-ac. tract, 4 miles E of Teague.
Material.

GREGG COUNTY

O. T. Clark's No. 1 Williams, 2,100 ft. from S and 2,400 ft. from W of D. Hill Sur., 3 miles NE of Longview.
S.D. 3,620 ft.

HENDERSON COUNTY

Campbell and Chamberlain's No. 1 R. Ansley, 1,724 ft. W and 300 ft. S of SE cor. of M. Matthews Sur., N. H. T. Thompson Sur.
S.D. 100 ft.

Crosby and Pulp's No. 1 M. T. Dobbs, NW cor. of east Dobbs 100-ac. tract, 4 miles E of Malahoff and S of Railroad, George Aldrick Sur.
T.D. 4,048 ft.; tested S.W.; C.O.

HILL COUNTY

Humble O. & R. Co.'s No. 1 Holderman, 1,667 ft. from E and 750 ft. from N line of tract in C. Sullivant Sur., 1 mile W of Mt. Calm.
Austin chalk 685-1,015 ft.; drlg. 1,275 ft.

HOPKINS COUNTY

D. A. Hale et al's No. 1 L. M. Hall, 200 ft. from N and E lines of 70-ac. tract, 1 mile SE of Miller Gros. A. Caro Sur.
S.D. 1,485 ft.

HUNT COUNTY

Cauble & Thompson's No. 1 Reed, 330 ft. N of northerly NE cor. of C. B. Payne Sur., but in F. Thweatt Sur., 3 miles SE of Greenville.
Coring 2,945 ft.

Shawver et al's No. 1 Phillips, 1,200 ft. E of Winan's No. 1 Phillips, University Lands Sur., 2 miles W of Commerce.
Elev. 522 ft.; S.D. 1,350 ft.

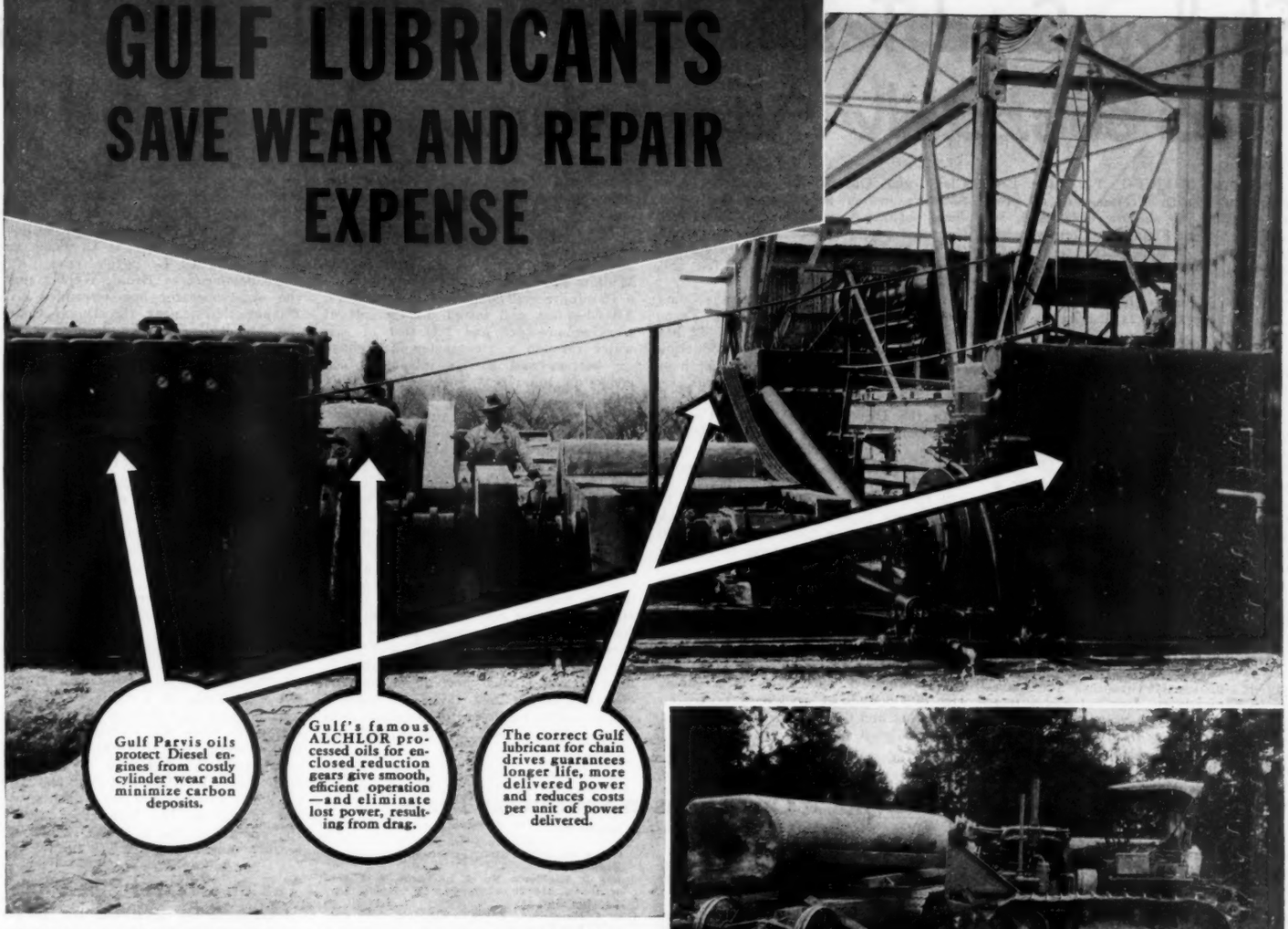
KAUFMAN COUNTY

Germany et al's No. 1 Clark, 951 ft. N and 1,000 ft. W of tract, S. Eden Sur.
S.D. 1,723 ft.

Murry & Emerson's No. 1 G. W. Martin, 1,660 ft. from W and 250 ft. from N of 140-ac. tract, from W. L. C. Butler Sur., 2 miles NE of Kemp.
S.D. 27 ft.

(Continued on Page 61)

GULF LUBRICANTS SAVE WEAR AND REPAIR EXPENSE


Gulf Parvis oils protect Diesel engines from costly cylinder wear and minimize carbon deposits.
Gulf's famous ALCHLOR processed oils for enclosed reduction gears give smooth, efficient operation—and eliminate lost power, resulting from drag.
The correct Gulf lubricant for chain drives guarantees longer life, more delivered power and reduces costs per unit of power delivered.

(*Right*) Gulf lubricants helped this model 60 cruise type caterpillar tractor transport this massive boiler five miles over muddy roads impassable for trucks. Its reversible single drum winch and the 15 ton Athey tractor trailer are also serviced with Gulf products.

For THESE REQUIREMENTS	*Gulf Supplies* THESE PRODUCTS
Diesel Engines	Gulf Parvis Oils Gulf I-C Oils
Gasoline Engines	Gulfpride Oils Gulflube Motor Oils
Gas Compressors (*Cylinders*)	Gulfcrest Oils Gulf Parvis Oils
Air Compressors	Gulfcrest Oils Gulf Harmony Oils
Steam Pumps	Gulf Crystal Cylinder Oils Gulf Acorn Cylinder Oils
Drilling Lines (*Steel*)	Gulf Lubecote
Compression Grease Cups	Gulf Supreme Cup Grease
Threads (*Pipe, Casing and Drill Stems*)	Gulf P. T. Grease
Rust Preventive (*Pipe, Casing, Drilling Tools, Etc.*)	Gulf No-Rust

Shut-downs and Lost Time Are Avoided By the Use of the Right Gulf Oils and Greases

DRILLING AND PRODUCTION equipment is subjected to hard, gruelling service in the oil fields. Performance must be dependable and efficient under all conditions—in the heat of summer and at zero temperatures.

Gulf's lubrication engineers have made a careful study of the unusual requirements of oil field equipment. By following their recommendations, you will reduce repair bills and eliminate costly shut-downs; and, at the same time, you will secure efficient lubrication under all operating conditions.

GULF REFINING COMPANY, PITTSBURGH, PA.

District Sales Offices:
Boston New York Philadelphia Atlanta New Orleans
Houston Pittsburgh Louisville Toledo

If there is any piece of mechanical equipment you operate which does not function to your complete satisfaction, a Gulf engineer will be glad to give you helpful information and assistance.

GULF INDUSTRIAL LUBRICATION

This coupon is for your convenience.

GULF REFINING COMPANY O.G. 3
3800 Gulf Bldg., Pittsburgh, Pa.
I would like to have information regarding lubricants for.....
.....
Name.....
Address.....
City.....State.....

Shallow Sand Test in West Tuleta Field Makes 25 Bbls. Daily After Failure in Pettus Sand

SAN ANTONIO, Tex., Mar. 4.—Opening up the first commercial oil production from the shallow Cole sand, in the West Tuleta Field, Bee County, with the prospects of some interesting developments at several widely scattered wildcat tests, located along the "Jackson Trend" held the attention of operators in the Southwest Texas district the past week.

H. K. Hasselman and others' No. 1 Sparrow, located in the center of tract No. 4, Section 20, in the West Tuleta Field, which failed to find production in the Pettus sand at a total depth of 3,978 feet, was plugged back to the Cole sand at 3,100 feet and was completed for an initial production of 25 bbls. daily. This sand has been tested by a number of wells in the field, but failed to produce anything but gas with a small amount of distillate. It is located on the east side of the field, and production was obtained by perforating the casing. The Pettus sand which is the regular producing horizon was cored from 3,962-78 feet.

Southwest of Falls City, Western Karnes County, Tonkin and others' No. 1 Henke, a wildcat test that has attracted considerable interest the past few weeks, made an electrical coring test at its total depth of 2,815 feet and is now running casing to test. The coring test showed a favorable looking sand from 2,150-2,212 feet, but due to a unsatisfactory drill stem test, the sand showed only a small amount of oil.

In the Angelita area, San Patricio County, Humble Oil & Refining Co. was preparing to make a drill stem test on its No. 1-B Welder. It cored sand from 5,531-45 feet, which is reported to have carried a good showing of oil. It is located on a 300-acre lease in the Tarver and P. Villareal Survey.

Locations for Two Tests

More development was assured the Dirks Field, Bee County, located northwest of the West Tuleta Field, when Dirks Brothers and Conservative Oil Co. made locations for two tests, making three tests for this field, which was opened several weeks ago. Due north of the discovery, Dirks Brothers' No. 1 Harris is located 330 feet from the northeast and northwest lines of the tract, in the J. L. Dugat Survey. West of the discovery, Conservative Oil Co.'s No. 1 Harris is 2,310 feet from the northwest line and 330 feet from the northeast line of the J. L. Dugat Survey. Navarro Oil Co.'s No. 1 Roth has the derrick completed, and should be spudded early this week. It is due south of the discovery.

In Starr and Hidalgo Counties, three wildcat tests held the attention of operators in that district. Two miles east of the Barbacoas Pool, south central Starr County, R. H. Vice's No. 1 E .B. Carruth in Share 1-B Porcion 91, Ancient Jurisdiction of Camargo originally drilled to 4,019 feet, but plugged back and sidetracked at 2,766 feet, is reported to have cored nine feet of saturated sand from 2,882-91 feet and is preparing to make a drill stem test. An electrical coring test which was run, showed the sand from 2,880-2,907 feet and sandy shale from 2,907-94 feet. In the southeastern part of the county. E. V. Van Huss No. 1 Garcia Land & Livestock Co., Porcion 100, Ancient Jurisdiction of Reynosa, cored another foot of sand carrying a good odor of oil from 2,787-88 feet and is preparing to make a drill stem test. It is about 3,000 feet from the nearest production in the Sam Fordyce Field, Hidalgo County.

West of the town of Mission in Southwestern Hidalgo County, W. L. Clary and Others' No. 1 Brock and Showers, which is reported to have cored saturated sand from 3,053-58 feet the total depth, has been taken over by the D. D. Oil Co. and the operators are preparing to plug back about 80 feet and sidetrack to recore the sand.

West of the discovery well in the Loma Nova Field, Duval County, the Texas Co.'s No. 1 Vela in Survey No. 42 has been completed for an initial production of 30 bbls. per hour at a total depth of 2,788 feet. Seven-inch casing was cemented at 2,773 feet.

In the Driscoll Field, Duval County, Continental Oil Co.'s No. 4-A Driscoll Estate in Survey No. 448, cored sand from 3,422-30 feet and on a production test with 7-inch casing cemented at 3,422 feet, it gauged 167 bbls. of oil in 13½ hours flowing by gas lift through tubing choke at a total depth of 3,430 feet. This is the best producer to be completed in the field to date.

Caesar Field Extended

The Caesar Field, Bee County, was extended a half mile northeast, when El Toro Oil Co.'s No. 1 Gardner in the F. Lewis Survey, made 150 bbls. per day through a one-eighth inch choke, with 300 pounds of working pressure on the tubing and 600 pounds on the casing. It is northeast of Wirm Oil Co.'s No. 1 Grissom, a producer which extended the field 4,000 feet southeast several weeks ago.

The wildcat test of Humble Oil & Refining Co., No. 1 J. C. Wood, located 13 miles southwest of Beeville in the William Burke Survey, Bee County, made a 10-minute drill stem test in sand from 3,914-84 feet and tested 325 pounds of working pressure and 200 feet of salt water through a one-quarter inch choke on bottom and a five-sixteenths inch choke on top. It is bottomed at 3,984 feet.

Six miles southwest of San Diego, Duval County, Section 53, Intrepid Oil Co. abandoned its No. 1 Parr at 4,856 feet after a drill stem test from 4,840-49 feet showed salt water. Another drill stem test proved discouraging at Pearson Properties, Inc.'s No. 1 Fitzsimmons, a wildcat located 8 miles southwest of San Diego in Survey 291. It showed salt water in sand from 4,541-56 feet and is reported that the operators are plugging back to test a sand which showed on an electrical coring test from 4,013-40 feet. No attempt has been made by the operators to test from 4,441-47 feet (corrected measurements), which appeared to have carried a good show of oil, but the electrical coring test failed to show.

Four miles northwest of Randado, Jim Hogg County, Merle Gunby is planning to drill a test on his 2,450-acre block composed of Surveys 572 and 571 of the E. L. Peyote grant. In the same area, W. G. French is reported to be planning to drill on the J. L. Pena land in Share 2, E. L. Peyote grant. Four miles northeast of Bruni, Webb County, the same operator has assembled a 2,290-acre block near the Duval County line and will drill two deep tests. One will be drilled to the "Conroe sand" at about 3,500 feet and the other will go to 6,000 feet. The block is composed of Surveys 714, 691, 320, 139 and 140. It is reported that the "deep" test will be located in the northeast corner of Survey 139, and the "Conroe sand" test will be located in Survey 714.

In Atascosa County, McIntyre and others have completed a 4,000-acre block in the Wilson County line, centering around the J. D. Woodlof Survey, about 6 miles north of the south corner of the Wilson Survey, and will drill a test within the near future.

In the southeastern part of DeWitt County, Stanolind Oil & Gas Co. has turned a part of their "Thomaston" block to S. S. Price for the drilling of a 3,000-foot test, to be started by March 10. The block joins on the west Humble Oil & Refining Co.'s "Kuester block."

Henderson and Harvey have made location for their No. 1 Chernosky, in the northeastern part of Duval County, approximately 5 miles east of the Eagle Hill Field. It is located 330 feet from the south line and 660 feet from the west line of Survey No. 226. It is west of the operators' No. 1 Serna, which was recently abandoned.

Wildcat Operations in Southwest Texas

Week Ending March 2

BANDERA COUNTY

W. B. Kyle et al's No. 1 Duke, 200 ft. NW line, 150 ft. SW line of J. A. Bennett Sur. No. 7.
Waiting on rig; drlg. wtr. well.

Plateau Oil Co.'s No. 1 Garrison, G.C.&S.F. Sur. No. 506, 1,500 ft. from N and 2,700 ft. from E lines of survey.
Drlg. 1,700 ft.

BASTROP COUNTY

Marts & Beavens' No. 2 Ray Rivers, 1,850 ft. from SE line, 2,050 ft. from NE line of Eliz. Sandifer Sur.
No report.

BEE COUNTY

Diamond Half Oil Co.'s (H. H. Weinert) No. 1 McKinney, 2,740 ft. from NW line, 330 ft. from NE line of Spenner Morris Sur.
Spudded and set surface csg.

Dirks Bros. and Earl Callaway's No. 1 Millster, 4,950 ft. from N line, 990 ft. from E line of Chas. B. Shain Sur.
Drlg. 3,750 ft.

Arthur W. Gray's No. 1 Rutledge, 3,322 ft. from N line, 250 ft. from E line of 200-ac. tract in B. Q. Hadley Sur.
Location.

Cecil Hagan's No. 1 John R. Scott, 1¼ mi. NE of Morgan test.
Abd. 4,502 ft.

Haines-McMillan Oil Corp.'s No. 1 Stoltzfus, 150 ft. from N and E lines of NE¼ NE¼ NW¼ Sec. 14.
Bldg. derrick.

R. M. Herod's No. 1 Kimball, 810 ft. from E line, 150 ft. from N line of 110-ac. tract in S. Winship Sur.
Comp.; wtr. well.

Humble O. & R. Co.'s No. 2 Thompson, 466 ft. NW of SE cor. of J. C. Wood tract, Wm. Burke Sur.
Drlg. 4,090 ft.

Mid-Continent Crude Oil Co.'s No. 2 Kimball (Grayburg area), S. Winship Sur.
Abd. 3,555 ft.

Mid-Texas Oil Co.'s No. 1 Trabland, 330 ft. from S and E lines of 91-ac. tract, ¼ mile E of Normana.
Drlg. 4,200 ft.

George Pace et al's No. 1 Gorre, C of Blk. 26, Tarver-Henslee Subd., Thos. B. Barton Sur.
Drlg. 2,950 ft.

Wightman et al's No. 1 Kimball, 1,200 ft. from NW line, 1,500 ft. from NE line of S. Winship Sur.
Spudded and S.D.

Worth Oil Co.'s No. 1-A Rutledge, 100 ft. S of No. 1, B. Q. Hadley Sur.
Drlg. 1,000 ft.

BEXAR COUNTY

Campbell's No. 1 Cantu, offsetting Meador's No. 1 Cantau, 150 ft. SW line, Arocha Sur. No. 15.
No report.

N. G. Carter's No. 1 Ruiz, western part of county; (work over).
T.D. 1,710 ft.; standing.

C. A. Ingersoll's No. 1 Mann, S of Von Ormy in John Christopher Sur.
Rigging up.

Jones & Kieffer's No. 1 LaGrane, NW cor. of tract, 210 ft. each way, F. Rolen Sur.
Testing 536 ft.

Geo. O'Neil's No. 1 Holly Crouch, NW cor. of 150-ac. tract.
Drlg. 1,395 ft.

BROOKS COUNTY

Helmrich & Payne's No. 1 Scott and Hooper, 1,320 ft. N and E lines of Blk. 44, Palo Blanco grant.
Abd. 5,040 ft.

CALDWELL COUNTY

Kurz Oil Co.'s No. 1 Kurz ranch fee, 4,600 ft. SW line, 4,300 ft. SE line of Barnard Kiecamp Sur.
Standing 4,110 ft.

Reedy & Sugs' No. 1 Thos. North Estate, 150 ft. from SE line, 1,200 ft. from SW line of 95.5-ac. tract, A. Floyd Sur.
T.D. 2,275 ft.; set csg. at 2,247 ft.; treating with acid and testing.

DUVAL COUNTY

Buffalo-Texas Syndicate's No. 1 Escosas, 2,777 ft. from N line, 1,944 ft. from W line of 930-ac. tract in San Francisco grant.
S.D. 4,010 ft.

Eckert-Peacock et al's No. 1 C. W. Sutherland, 320 ft. N and W lines of SW¼ NE¼ of Sur. 188.
Standing 2,361 ft.

Grimes et al's No. 1 Fitzsimmons, 300 ft. from S line, 150 ft. from E line of Sur. 291.
T.D. 4,545 ft.; P.B. to 4,440 ft.; preparing to make D.S. test.

Intrepid Oil Co.'s (E. R. Thomas) No. 1 Parr, 2,590 ft. S line, 150 ft. E line of Sur. 135, E. H. Valentine Sur.
Abd. 4,856 ft.

EDWARDS COUNTY

Harry Adams' No. 1 Holman, 1,650 ft. N line, 330 ft. from E line, Sec. 22, C.C.S. D.&R.G.N.G. Sur.
S.D. 602 ft.; showing oil at 520-25 ft. and trying to pull csg.

FAYETTE COUNTY

Clark et al's No. 1 Becker, 750 ft. NW line, 1,300 ft. SW line of 143.74-ac. tract in A. E. Baker League.
Location.

Rose Fenton's No. 1 Kasper (263-ac.), 1,000 ft from NE line, 1,280 ft. from SW line, of Thos. Green Sur. No. 28.
Location.

FRIO COUNTY

Amerada Pet. Co.'s No. 3 Halff & Oppenheimer, 2,100 ft. from southwesterly NW line, 300 ft. NE line of B. J. Gilman Sur. No. 16.
T.D. 2,926 ft.; est. 75 bbls. per day; preparing to test sand again.

W. T. Shoemaker's No. 1 M. Roche, 150 ft. SW cor. of Carl Wenzel Sur. No. 139.
Set csg. at 2,361 ft.; to test sand at 2,365-71 ft.

(Continued on Page 66)

Tax on Gas and Pipe Lines Urged by Allred in Texas

AUSTIN, Tex., Mar. 4.—Gov. James V. Allred, in an extensive message he read to the legislature today, recommended increasing the natural gas tax to one cent per 1,000 feet, to raise $7,500,000 a year, and collecting it from the purchaser. He invited close study to determine whether the oil production tax should be increased.

He also recommended a graduated chain-store tax and urged that it should include retail filling stations as well as other types of establishment, though a House chain-store tax bill, approved by committee exempts them.

Governor Allred claimed the net profit of 20 pipe lines is more than $78,000,000 or 25 per cent in one year on investments. He recommended a 1 per cent tax on gross assets of oil and gas pipe lines, which he estimated would bring in $1,000,000. He also urged additional franchise taxes.

Governor Allred recommended study to determine if an income tax on individuals and corporations will be required, in addition to other tax proposes, and asked if such a law is passed, a graduated tax increasing on higher brackets, and the remission of amounts equal to ad valorem taxes paid on the properties of income-paying corporations or individuals. He also asked a constitutional amendment to permit classifying property for taxation.

OIL ENRICHES TOWNSHIP

MIDLAND, Mich., Mar. 2.—Officials of Porter Township, where more than half of Michigan's oil is produced, are kept busy devising ways to spend its revenue, which rolls in at $150 a day. First they built a new town hall. Now, $40,000 has accumulated in the treasury. Voters will ballot March 4 on a proposal to make electricity available to all the farms of the area.

Gulf Production Co. Test in West Upton County Is Now Deepest Test in the United States

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 4.—Texas, especially the Permian Basin, West Texas, now claims the deepest test in the United States. Gulf Production Co.'s No. 103 McElroy, in Section 197, Block F, western Upton County, and in the McElroy Pool, from which production is obtained in the Permian lime, is now down 11,380 feet and drilling, 3 feet below General Petroleum Corp.'s No. 1 Berry, in the South Belridge Field, California, which has held the record for two years. Tubing is stuck in the hole in that test.

The Gulf test in West Texas cored from 11,291 to 11,305 feet, but no showings of oil or gas were reported. No major accidents or lost time have been suffered in drilling this test, and there have been no fishing jobs of any consequence during the entire drilling of the hole which is now reduced to 6¼ inches and in good shape for carrying down indefinitely. Last July, 10,301 feet of 7-inch casing was set in the hole in record time, and cemented with 2,000 sacks of cement. A test made at 10,978 feet showed a small amount of high gravity oil from the lime, but did not prove of material value.

Six-inch drill pipe was used in drilling to 4,017 feet, when 4-inch drill pipe was run in the hole and used to 10,630 feet. From that point down 3½-inch drill pipe has done the work, and no fishing jobs or twistoffs have held up drilling below 7,000 feet. Welding of tool joints to the drill pipe is credited with preventing fishing troubles.

A record, complete to every detail pertaining to the geological formations drilled and the equipment used, has been maintained by B. G. Martin, geologist assigned by the company for his special purpose. The company is high in its praise of the three drilling crews that have carried this test to the record depth. Their keen interest in the drilling and carrying the test down without accidents, and with as little trouble and expense as possible under the circumstances, has been the major factor in drilling according to company officials. Drilling was started the latter part of March, 1933, the test nearing the two-year mark, but within this time it was shut down for several weeks waiting on orders.

Glasscock County

John I. Moore and others' unit test in Section 22, Block 34, Township 2s, T.&P. Survey, Glasscock County, which picked up an exceptionally good high gravity oil showing last week at 9,510 feet and shut down at 9,520 feet for casing, has had to be circulated at half-hour intervals all week to prevent blowing out. The gas was struck at 9,484 feet, the Crinoidal limestone being logged at 9,471 fett.

The oil is light green in color with a tinge of yellow and has a strong gasoline odor, being similar to oil found in the Ordovician wells in the Big Lake Field, Reagan County, to the south. It will probably be another 10 days or two weeks before a test can be made, the operators now waiting on 7⅝-inch casing to run in the hole and cement. It will then have to stand cemented for several days before plug can be drilled. Major companies will be exceptionally interested in this test as it has developed the best deep oil and gas showing encountered in any deep well outside of the Big Lake Field.

Tide Water Oil Co. and Merry Brothers and Perini are completing their No. 1 Mary Howard discovery well in Fisher County as a pumper, after plugging back from 3,679 feet to 6,672 feet to shut off the water and oil, then redrilling to 3,674 feet where it now stands. Large pipe was pulled and a 5½-inch liner was run. Early in the week it swabbed 146 bbls. of oil and 65 bbls. of water in 12 hours and looks good for at least 100 bbls. per day on the pump.

The owners are staking another location, believed to be to the south of the discovery, on their 8,500-acre block. Tide Water Oil Co. holds a three-quarters interest and Merry Brothers and Perini the remaining interest in the block. The oil tested 38.8 gravity. A small line may be laid from the well to a loading rack on the T. & P. Railroad at Rotan, about 6½ miles southwest, as a temporary outlet. A major pipe line company serving the Royston Pool to the east, in the same county, may elect to lay a connecting line to this newly opened area as soon as another well is completed, proving a pool of sufficient importance to justify laying a line.

Phillips Petroleum Co. has purchased a quarter section in Section 96, Block 1, H.&T.C. Survey, 1½ miles southeast of this discovery, and about one-half mile south of the tentative location for the second test on the block. Magnolia Petroleum Co. has purchased the E half Section 174, Block 2, H.&T.C. Survey, 1 mile northeast of the discovery. Barnsdall Oil Co. is checking acreage in the area, and others have been making small purchases also.

L. De Mont of Abilene is assembling a block centering in the Saunders land in Section 1, Block 15, T.&P. Survey, Jones County, for a 1,900-foot test. J. T. Pettit of the same city is also assembling a block in this county for two such shallow tests. This block centers in Section 1, Block 17, T.&P. Survey, and is 1 mile east of Truby. Parson and Hoffman of Dallas are assembling a block centering in Section 87, Block 14, T.&P. Survey, near Fort Phantom Hill, in the northern part of Jones County, for a 1,900-foot test. These shallow tests have become popular in the northern part of Jones County, around Nugent and Hawley, since the Sayles Pool and other discoveries have been made during the past two years. However, a test drilled in this general area by Texas-Inland Oil Co., on the Sayles ranch, Lot 1, Block 20, T.&P. Survey, proved dry at 1,918 feet and has been abandoned. William Rhodes got a 20-bbl. pumper from pay at 1,941 feet in his test on the Wood land in Section 2, Block 2, T.&N.O. Survey. Total depth is 1,971 feet.

McCulloch County

Another recently discovered area, on the eastern flank of the West Texas district, on the White Ranch in northern McCulloch County, now appears limited to one well, or but to a small area surrounding the discovery, which was drilled for a water well, but proved a 20-bbl. per day producer when drilled to 670 feet, and was later deepened to 685 feet without an increase in production. A southwest offset proved dry at 700 feet. This test was drilled by Cardinal Oil Co. of San Angelo, which contracted to drill four tests around the discovery. Another test of the company, No. 3 White, in Section 2, southeast of the discovery, has also missed the shallow pay and is drilling below 850 feet. Honea and others' No. 1 Cox, in the David Pope Survey, missed the shallow pay and is underreaming casing, with total depth at 805 feet. Four other tests are drilling in this general area, with Cardinal Oil Co. having one more to drill.

Andrews County

Humble Oil & Refining Co.'s No. 3 Means, in Section 4, Block C-46, P.S.L. Survey, approximately three quarters miles southwest of the company's discovery in the Means Pool, Andrews County, has been running lower than the discovery, which was completed at 4,527 feet, has been bottomed at 4,612 feet making 180 bbls. in 24 hours, forming another connecting link between the discovery and producers to the south. The field is now a little over 3 miles long from north to south.

Wildcat Locations

There were three wildcat locations staked in the district this week, whereas 13 locations were staked for field wells. Cranfill Brothers staked location for another test in the Tubbs area in the extreme western portion of Crane County, where there is one small producer which they drilled jointly with Gulf Production Co. Their new location is 330 feet from the south and west lines of Section 11, Block B-27, P.S.L. Survey, about 2 miles southeast of the discovery in the northwest quarter of Section 9, same block and survey. There is a dry hole to the southwest and to the north of the discovery.

Byrd-Frost, Inc. of Dallas has staked location for a wildcat test in Section 6, Block E, L.V.S.&V. Survey, on the Boyd Ranch, approximately 15 miles north of the Big Lake Field, Reagan County. T. K. Simmons is drilling on a wildcat location in Section 7, Orphan Asylum Lands, on the T. M. Harrell Ranch in Jones County.

Twin Oil Co., formed by McKee Brothers of San Angelo, has let contract for a test on the G. W. Green lands in the Levi P. Moore Survey, about 2½ miles southeast of San Angelo, in Tom Green County. It may be carried to 3,500 feet.

Humble Oil & Refining Co. has temporarily abandoned its proposed Ordovician test on the Couch Ranch, in Section 3, Block QR, G.C.&S.F. Survey, Crockett County; total depth is 1,850 feet; elevation is 2,538 feet. However, it has not been plugged and will no doubt be carried deeper later.

Ector County

Atlantic Oil Producing Co.'s No. 1 Kloh (T. P. Land Trust) in Section 11, Block 43, Township 1s, T.&P. Survey, south of production in the Cowden Pool, Ector County, drilled to 4,391 feet and showed 2 bbls. of oil per hour with some water. It has been plugged back to 4,350 feet and is now shut down waiting on cement to set. It may prove one of the southern markers of this pool.

Winkler County

J. C. Maxwell and others' No. 1 Clapp, wildcat in Section 37, Block 26, lying on the trend between the Howe and

Wildcat Operations in West Texas

Week Ended March 4

ANDREWS COUNTY

Fuhrman Pet. Corp.'s No. 2-B Boner, 440 ft. from N and 1,320 ft. from E, Sec. 25, Blk. A-43.
Drlg. 3,980 ft.

Humble Oil & Ref. Co.'s No. 3 Means, 1,980 ft. from S and 3,300 ft. from W, Sec. 4, Blk. C-45.
Top pay 4,140 ft.; T.D. 4,612 ft.; flowing.

Humble Oil & Ref. Co.'s No. 3 Means, 660 ft. from N and 1,997 ft. from E, Sec. 9, Blk. A135.
Set csg. 2,500 ft.

Humble Oil & Ref. Co.'s No. 4 Means, 654 ft. from S and 1,997 ft. from W, Sec. 4, Blk C-45.
Material.

Stogner et al's No. 1 Richardson, 1,980 ft. N and 660 ft. E, Sec. 4, Blk. A-37, P.S.L.
Drlg. 1,672 ft.

Wahlenmaier et al's No. 1 Odessa Ranch Co., 1,320 ft. from N and E of Sec. 10, Blk. A-32, P.S.L. Sur.
Location.

Wahlenmairer et al's No. 1 Cox Estate, 1,320 ft. from N and W of Sec. 8, Blk. A-33.
Location.

York & Harper's No. 1 Hereford Stock Farms, C Labour 12, League 315, Parmer Co. School Lands
Drlg. salt 2,965 ft.

BREWSTER COUNTY

F. C. Dodson's No. 1 Texas American Syndicate, 660 ft. from N and E, Sec. 66, Blk. 10, G.H.&S.A. Sur.
Drlg. 90 ft.

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,390 ft. from E of Sec. 21, Blk. 352, W. M. Mitchell Sur.
Drlg. 2,030 ft.

King & Franklin's No. 1 Gage Est., C Sec. 138, Blk. 22, G.H.&S.A. Sur.
Ran csg. 604 ft.

S. G. Smith's No. 1 Decie, 2,490 ft. from S and E, Sec. 7, Blk. 1.
Drlg. 710 ft.

COCHRAN COUNTY

Kelsey's No. 1 Slaughter, C Labour 36, League 150, R.C.S. Lands.
Derrick.

West Texas Development Co.'s No. 1 Slaughter, near C of Labour 53, League 149, Randall Co. School Lands.
Derrick

COKE COUNTY

Haggerty et al's No. 1 Gaston, 340 ft. from S and 654 ft. from W, Sec. 11, Jos. Young Sur. (old well deepening).
S.D. 2,614 ft., ran csg.

CRANE COUNTY

Cranfill Bros.' No. 1 Tubbs, 330 ft. from S and W of Sec. 11, Blk. B-27, P.S.L. Sur.
Location.

Gulf Prod. Co.'s No. 1 Waddell, C NW NW Sec. 4, Blk. B-27, P.S.L. Sur.
Show oil and gas 3,000 ft. Drlg. 3,110 ft.

Gulf Prod. Co.'s No. 9 Waddell, C of NE, Sec. 11, Blk. B-23, P.S.L. Sur.
S.D. 3,100 ft. after setting csg.

Wahlenmaier Pet. Corp.'s No. 1 Kloh, 330 ft. from S and 1,650 ft. from W, Sec. 33, Blk. 43, Twp. 4s, T.&P. Sur.
Drlg. 2,852 ft.

CROCKETT COUNTY

Eppenauer Drlg. Co.'s No. 1-C Powell, 1,600 ft. from S and 250 ft. from E, Sec. 53, Blk. Drlg. 1,390 ft.; elev. 2,665 ft.
T.D. 1,005 ft. to set csg.; elev. 2,665 ft.

Leslie-Hiller et al's No. 1 Todd, 1,200 ft. N and 330 ft. E, Sec. 26, Blk. WX, G.C.& S.F. Sur.
S.D. 580 ft.

Humble Oil & Ref. Co.'s No. 1 Couch, C NW Sec. 3, Blk. QR, G.C.&S.F. Sur.
Temporarily abnd. 1,881 ft.; elev. 2,538 ft.

CULBERSON COUNTY

Anderson-Pritchard Oil Corp., Magnolia Pet. Co. et al's No. 1 Borders, 1,255 ft. N and 2,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
S.D. 940 ft.

Miller Bros.' No. 1 fee, 1,900 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur.
S.D. 2,145 ft.; show oil 2,107 ft.

Wood et al's No. 1 Hall, 250 ft. from S and 85 ft. from E, Sec. 11, Blk. 54½, 16 miles N of Van Horn, P.S.L. Sur.
S.D. 246 ft.

DAWSON COUNTY

Adams & Turner's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.
Drlg. 3,868 ft.

ECTOR COUNTY

Atlantic Oil Prod. Co.'s No. 1 T. P. Land Trust, 440 ft. from N and W of SE Sec. 11, Blk. 43, Twp. 1s, T.&P. Sur.
To test at 4,388 ft.; 2,000 ft. water and oil in hole.

Callahan et al's No. 1 Connell, 330 ft. from N and 990 ft. from W, Sec. 10, Blk. 30, Twp. 1s.
Drlg. 475 ft.

(Continued on Page 62)

Halley areas in Winkler County, looks as if it would make a smaller producer since it filled 2,000 feet with oil after plugging back to shut off water and shooting with 60 quarts. Total depth is now 3,270 feet. A larger shot is to be placed above this small shot. The test may yet prove a connecting link between the two areas, although when drilled to total depth of 3,487 feet it made so much water it looked somewhat discouraging.

Sid Richardson's No. 1 Hill, in Section 18, Block B-11, about 2 miles northeast of the Halley discovery well, Winkler County, also appears as a small producer since it was plugged back from total depth of 3,846 feet to 3,155 feet, shot and flowed 68 bbls. in 17½ hours. This test also appeared as a failure during the past few weeks when it encountered sulphur water. It will prove considerable more area to the Halley Pool, and is to be the second well completed in the district. A test will probably be drilled at once on acreage lying between this new well and the Halley discovery in Section 25, same block and survey.

Because wells in the older producing areas of the Permian Basin have decreased considerably in production in the past few years, is no sign that these fields cannot produce much more oil than present potentials now.

The Pecos Crude Oil Purchasing Co. has sold two leases, totaling 240 acres, E half SW Section 34, Block 3, H.&G.N. Survey, with two wells, and NW Section 22, Block 10, H.&T.C. Survey, with three wells, in the shallow sand producing Pecos Valley Pool, about 18 miles north of Fort Stockton, Pecos County, to California interests.

The Pecos Pipe Line Co. has also sold 12 miles of the 17-mile line connecting the field with Atlantic Pipe Line Co.'s line in Ward County. Midland operators purchased this stretch. Walter B. Hagen of San Angelo owned the two selling companies.

WICHITA FALLS DISTRICT

There were 37 locations staked in the Wichita Falls district this week and 27 tests completed, 12 producers. There are more activities in the district, especially wildcatting and more general work, than during the past five years, with companies and independents leasing wildcat blocks for testing.

Continental Oil Co. has purchased 800 acres in a block centering in the east 246 acres of the B. W. Boardman tract in the D. E. E. Brannone Survey, 2 miles north of shallow production on the Henry Boddy and C. T. Taylor ranches in Clay County.

W. Z. Paxton and associates of Oklahoma have assembled approximately 5,000 acres in a block centering in the John Swinning Survey, Cooke County, and have made location for a wildcat test.

Grisham & Hunter Corp. of Abilene has purchased approximately 3,850 acres in Block 14, T.&P. Survey, on the west line of Shackelford County, extending into Jones County, and will drill a 2,000-foot test.

Day Brothers of Rotan have leased approximately 12,800 acres in the southwest corner of Stonewall County, in Block 2, H.&T.C. Survey, and are to drill a 4,000-foot cable tool test on the line between sections 352 and 345.

C. C. Reagan of Gladewater has assembled a 15,000-acre block north of Duffau, centering in the Edward Morrison Survey, Erath County, for a 2,750-foot cable tool test. W. J. Clay of Stephenville, is blocking 4,000 acres centering in the R. Newland Survey for a 3,500-foot cable tool test, which is to be 3 miles southeast of Hannibal and in the trend 3 miles SE of the X-Ray Pool, in Erath County.

Production in the district averaged 63,945 bbls. per day for the week.

PANHANDLE DISTRICT

There were 16 locations staked in the Panhandle district this week, while only nine wells were completed, all but one proving producers, two being gas wells. No. 2-A Bivins in Section 22, Block 6, B.S.&F. Survey, Potter County, drilled by the United States Bureau of Mines made a 12,000,000-foot gasser.

Production in the district averaged 62,900 bbls. per day for the week.

COMPLETIONS IN WEST TEXAS

Ector County

Sunray and Llano Oil Co.'s No. 3 Jones, top pay 3,610 feet, total depth 3,670 feet, shot with 200 quarts from 3,605-70 feet, initial production 198 bbls.

Fisher County

General Crude Oil Co.'s No. 4 Willingham, top pay 3,104 feet, total depth 3,116 feet, initial production 386 bbls. in 48 hours.

Howard County

Ungren & Frazer's No. 2 Hall, total depth 2,820 feet, shot with 600 quarts from 2,420-2820 feet, initial production 175 bbls. per day, pumping. Illinois Oil Co.'s No. 3-A Davis, total depth 2,822 feet, shot with 600 quarts from 2,480-2,822 feet, initial production 482 bbls. California Co.'s No. 4 Bell, total depth 2,803 feet, shot with 380 quarts from 2,803-2,615 feet, initial production 325 bbls. Continental Oil Co.'s No. 14 Settles, total depth 2,535 feet, shot with 260 quarts from 2,380-2,420 feet; initial production 16 bbls. per day, pumping. Mid-Continent Petroleum Co.'s No. 3 Denman, total depth 2,815 feet; shot with 360 quarts from 2,560-2,815 feet, initial production 247 bbls. per day, swabbing.

Jones County

Texas-Inland Oil Co.'s No. 1-A Sayles, dry and abandoned, 1,918 ft. Rhodes' No. 1 Wood, top pay 1,941 feet, total depth 1,971 feet, initial production 20 bbls. per day, pumping. McKenzie & Bland's No. 1 First National Bank of Anson, location abandoned.

Mitchell County

Adams' No. 1 Mackey, dry and abandoned at 3,067 feet, elevation 2,178 feet.

Pecos County

Stanolind and Continental Oil Co.'s No. 4-C Tippett, top pay 1,368 feet, total depth 1,371 feet, initial production 70 bbls. oil and 12 bbls. water per day. Stanolind Oil & Gas Co.'s No. 5-B Smith, top pay 1,192 feet, total depth 1,348 feet, initial production 33,720 bbls. in 12 hours. Cardinal Oil Co.'s No. 6-D Tippett, top pay 363 feet, total depth 520 feet, plugged back to 379 feet, initial production 15 bbls. per day, pumping.

Ward County

Richardson's No. 17-B Johnson, top pay 2,322 feet, total depth 2,590 feet, initial production 150 bbls. per day.

Winkler County

J. C. Maxwell and others' No. 1 Daugherty, top pay 2,820 feet, total depth 2,962 feet, initial production 546 bbls.

COMPLETIONS IN PANHANDLE

Gray County

Skelly Oil Co.'s No. 22 East Schaffer, top pay 3,175 feet, total depth 3,265 feet, shot 330 quarts from 3,170-3,265 feet, initial production 385 bbls. per day pumping.

Hutchinson County

Stekoll Oil Producers' No. 2-G Whittenburg, top pay 2,880 feet, total depth 2,974 feet, shot 120 quarts from 2,900-70 feet, initial production 454 bbls. per day pumping.

Potter County

U. S. Bureau of Mines' No. 2-A Bivins, top pay 3,295 feet, total depth 3,543 feet, initial production 12,000,000 feet of gas.

Wheeler County

Carver Drilling Co.'s No. 1 Rock Island Railroad, dry and abandoned 2,214 feet. Champlin Oil & Refining Co.'s No. 1 Edes, top pay 2,510 feet, total depth 2,540 feet, initial production 2,036 bbls. Johnson and others' No. 1 Grogan, total depth 1,560 feet, initial production 68,300,000 feet of gas. Shell Petroleum Corp.'s No. 6 Bush, top pay 2,465 feet, total depth 2,539 feet, initial production 425 bbls. Skelly Oil Co.'s No. 1 Johnson, top pay 2,390 feet, total depth 2,640 feet, initial production 844 bbls. Texas Co.'s No. 6 Keller, top pay 2,460 feet, total depth 2,530 feet, initial production 408 bbls.

COMPLETIONS IN WICHITA FALLS DISTRICT

Archer County

M. M. Bradley and others' No. 1 Carrie Threat, total depth 1,125 feet, dry and abandoned. Cullum & Alexander's No. 14 Falls County School Land, total depth 1,134 feet, pay 1,105-34 feet, initial production 60 bbls., acidized. W. B. Hamilton's No. 18 Cartwright Production Co., total depth 1,195 feet, dry and abandoned. Luther Hedrick and others' No. 1 J. H. Robertson, total depth 1,507 feet, dry and abandoned. Maxson and Panhandle's No. 34-B F. C. Green, total depth 1,108 feet; pay 1,102-08 feet, initial production 25 bbls., acidized; No. 35-B F. C. Green, total depth 1,116 feet, pay 1,105-16 feet, initial production estimated 70 bbls., acidized two times.

Perkins & Cullum's No. 140 Falls County School Land, total depth 1,140 feet, pay 1,122-40 feet, initial production estimated 50 bbls., acidized; No. 141 Falls County School Land, total depth 1,118 feet, pay 1,097-1,118 feet, initial production estimated 55 bbls., acidized; No. 145 Falls County School Land, total depth 1,112½ feet, pay 1,101-12½ feet, initial production estimated 45 bbls., acidized. Ray & Staniforth's No. 13 T. B. Wilson, total depth 1,603 feet, pay 1,599-1,603 feet, initial production 175 bbls. Russell & Wilson's No. 17 H. O. Prideaux, total depth 680 feet, pay 662-80 feet, initial production 8 bbls. White & Duncan's No. 2 R. O. Prideaux, total depth 742 feet, dry and abandoned.

Clampitt and others' No. 1-A Benson estate, dry and abandoned at 1,000 feet. Cullum's No. 25 Falls-Ellis, top pay 1,134 feet, total depth 1,150 feet, initial production 15 bbls. per hour, swabbing. Cumley and others' No. 1 Clark, dry and abandoned at 1,400 feet. Druny Oil Co.'s No. 5 Harmonson estate, top pay 850 feet, total depth 855 feet, initial production 5 bbls. Hamilton's No. 16 Cartwright Production Co.-Webb, top pay 1,228 feet, total depth 1,247 feet, initial production 125 bbls. Kleiner and others' No. 14 Andrews, dry and abandoned at 985 feet. Pace's No. 22 Harris Subdivision, top pay 1,173 feet, total depth 1,185 feet, initial production 75 bbls.; No. 23 Abercrombie, top pay 1,173 feet, total depth 1,184 feet, initial production 80 bbls. Perkins & Cullum's No. 137 Falls County, top pay 1,188 feet, total depth 1,205 feet, initial production 200 bbls.; No. 138 Falls County, top pay 1,105 feet, total depth 1,131 feet, initial production 50 bbls.; No. 139 Falls County, top pay 1,178 feet, total depth 1,190 feet, initial production 100 bbls.; No. 142 Falls County, top pay 1,158 feet, total depth 1,177 feet, initial production 150 bbls. Rathke Oil Co.'s No. 1 Archer County (Bridwell), dry and abandoned at 1,003 feet. Ray & Staniforth's No. 2-B Wilson, top pay 1,612 feet, total depth 1,616 feet, initial production 125 bbls. Steele Drilling Co.'s No. 1 Kunkle, dry and abandoned at 1,354 feet.

Clay County

L. F. Hooker and others' No. 1 L. S. Wright, total depth 919 feet, dry and abandoned.

Cooke County

Kewanee Oil & Gas Co.'s No. 20-A R. J. Timmis, total depth 1,202 feet, pay 1,074-80 feet, initial production 25 bbls. Pace & McClure's No. 1 Mrs. W. Franklin, total depth 1,818½ feet, dry and abandoned. M. T. Smith & Son Drilling Co.'s No. 1 A. E. Roberts estate, total depth 1,507 feet, dry and abandoned. Wesnant & Patton's No. 1 J. C. Whaley, total depth 1,527 feet, dry and abandoned.

Jack County

Alta Bloodworth's No. 1 J. M. Bloodworth, total depth 342 feet, dry and abandoned. D. R. Sewell and others' No. 1 J. H. Shown, total depth 400 feet, dry and abandoned.

Lundien and others' No. 6 Bloodworth, top pay 308 feet, total depth 321 feet, initial production 3 bbls. Nail's No. 4 Peterson, dry and abandoned at 640 feet.

Montague County

Beck's No. 1 Cobb estate, dry and abandoned at 2,025 feet. Bourland and others' No. 1 Loy, dry and abandoned at 1,891 feet. Bridwell Oil Co.'s No. 2 Hoben, dry and abandoned at 1,618 feet. Lesh and McCall's No. 3 Davenport and others, dry and abandoned at 1,671 feet.

Throckmorton County

Consolidated and Petroleum Producers' No. 1-C W. H. Portwood, total depth 1,450 feet, dry and abandoned.

Wichita County

H. Andrews and others' No. 1 A. A. Honaker, total depth 585 feet, dry and abandoned. F. C. Baldwin and others' No. 1 Grace Jennings, total depth 2,060 feet, dry and abandoned. L. T. Burns' No. 1 R. W. Porter, total depth 1,675 feet, dry and abandoned. C. W. Clark and others' No. 4-B Allen & Kemp, total depth 1,236 feet, pay 1,233-36 feet, initial production 50 bbls. George Proctor and others' No. 1 Jane Bell Honaker, total depth 1,345 feet, dry and abandoned. Texas Co.'s No. 17 Allen & Kemp, total depth 458-66 feet, initial production 10 bbls.

Burns' No. 42 Beach, dry and abandoned at 527 feet; No. 12 First National Bank, top pay 448 feet, total depth 458 feet, initial production 3 bbls.; No. 13 First National Bank, dry and abandoned at 468 feet. Burns & Long's No. 24-D Allen & Kemp, dry and abandoned at 1,657 feet. Golding & Cochran's No. 1 McFall, dry and abandoned at 1,825 feet. King Royalty Co.'s No. 3-J Waggoner estate, top pay 1,561 feet, total depth 1,565 feet, initial production 224 bbls. Schlaffke's No. 2 Honaker, top pay 1,057 feet, total depth 1,067 feet, initial production 30 bbls.

Wilbarger County

Lawson and Leavell's No. 1 Blank, top pay 1,649 feet, total depth 1,651 feet, initial production 100 bbls. in 36 hours.

Young County

Nicholson and others' No. 1 J. P. Logan, total depth 610 feet, dry and abandoned.

Abernathy and others' No. 1 Yates, dry and abandoned at 439 feet. Cox and others' No. 1 George estate, dry and abandoned at 750 feet. Glover's No. 15 Johnson, top pay 510 feet, total depth 527 feet, initial production 2 bbls. Honea and others' No. 10 fee, top pay 928 feet, total depth 948 feet, initial production 10 bbls. of oil and 7 bbls. of water. King Royalty Co.'s No. 1 Lane, dry and abandoned at 725 feet. Loftin and others' No. 1 Noel, dry and abandoned at 505 feet. Martin & Son's No. 1 Belknap Coal Co., top pay 594 feet, total depth 603 feet, initial production 100 bbls. Stilley and others' No. 3 Perkins, dry and abandoned 778 feet. Stuckey Oil & Gas Co.'s No. 1 Rothel, dry and abandoned at 931 feet. Stovall's No. 6 fee, top pay 4,160 feet, total depth 4,233 feet, initial production 50 bbls. of oil and 20 bbls. of water.

OIL GEOLOSIST'S ADDRESS

CALGARY, Alberta, Mar. 2.—Addressing the Kiwanis Club recently, Stanley E. Slipper, geologist for the Canadian Western Natural Gas, Light, Heat & Power Co., dealt with "Methods of Exploring for Oil and Gas." He estimated 1,719,741 feet of drilling in Alberta up to 1933, of which 898,926 feet were in the foothills and 821,815 feet on the plains. At $10 a foot, this would cost around $17,000,000. Of this, about 1,270,000 feet was productive; though only one major oil field, Turner Valley, and two small ones, Red Coulee and Wainwright, were discovered. From an outlay of $17,000,000 for development, the total returns in oil and gas were estimated at $42,000,000.

East Texas Fields

(Continued from Page 54)

52 Cole, top sand 3,624 feet, total depth 3,628 feet, initial production 38 bbls. in 20 minutes; No. 53 Cole, top sand 3,613 feet, total depth 3,617 feet, initial production 18 bbls. in 15 minutes. Southport Petroleum Co.'s No. 2 I.&G.N.R.R., top sand 3,536 feet, total depth 3,585 feet, initial production 60 bbls. per hour. Stanolind Oil & Gas Co.'s No. 3 A. W. Miller, top sand 3,587 feet, total depth 3,590 feet, initial production 50 bbls. per hour; No. 4 A. W. Miller, top sand 3,586 feet, total depth 3,593 feet, initial production 20 bbls. in 23 minutes.

Rusk County

DeArman & McMillan's No. 9 Robertson, top sand 3,559 feet, total depth 3,673 feet, initial production 30 bbls. in 30 minutes. Gulf Production's No. 5 W. Oten, top sand 3,556 feet, total depth 3,652 feet, initial production 6 bbls. per hour swabbing. H. R. Smith's (formerly Houston Production Co.) No. 3 S. S. Laird, location abandoned. Kirby Petroleum Co.'s No. 11 Reddic, top sand 3,605-22 feet, total depth 3,725 feet, initial production 25 bbls. in 30 minutes. Magnolia Petroleum's No. 15 J. C. Bradbury, top sand 3,661 feet, total depth 3,669 feet, initial production 24 bbls. in 15 minutes. Retsal Drilling Co.'s No. 1-A W. Britton, total depth 3,677 feet in shale, initial production 15 bbls. in 50 minutes. A. E. Roscoe's No. 2-B C. E. Christian, top sand 3,650 feet, total depth 3,657 feet, initial production 50 bbls. in 30 minutes.

Standtex Oil Co.'s No. 5 L. Morris, top sand 3,676 feet, total depth 3,628 feet, initial production 125 bbls. per hour. Wheelock & Collins' No. 14 D. Wells, top sand 3,590 feet, total depth 3,610 feet, initial production 20 bbls. in 30 minutes. Woodley Petroleum Co.'s No. 7-A J. Ladd, top sand 3,600 feet, total depth 3,610 feet, initial production 30 bbls. in 20 minutes through three-quarters inch choke. Atlantic's No. 5-D Young, top sand 3,625 feet, total depth 3,690 feet, initial production 125 bbls. per hour. R. E. Fair, Inc.'s No. 11-A B. F. Maxwell, top sand 3,693-3,733 feet, total depth 3,745 feet, initial production 35 bbls. per hour through 2-inch tubing. Gulf Production's No. 8 E. E. Thrash, top sand 3,758 feet, total depth 3,797 feet, initial production 53 bbls. per hour through three-quarters inch choke.

Guthrie and others' No. 2 W. H. Frederick, top sand 3,532 feet, total depth 3,600 feet, initial production 180 bbls. in six hours swabbing. W. B. Hamilton's No. 9 L. A. Gambrell, top sand 3,680 feet, total depth 3,692 feet, initial production 60 bbls. per hour. Humble Oil & Refining Co.'s No. 12 J. Fuller, top sand 3,661 feet, total depth 3,683 feet, initial production 34 bbls. in 30 minutes; No. 13-C Ida Holt, top sand 3,660-85 feet, total depth 3,754 feet, initial production 51 bbls. per hour; No. 5 J. White, top sand 3,644-60 feet, total depth 3,730 feet in shale, initial production 23 bbls. in 30 minutes; No. 8 F. F. Wooster, top sand 3,748-69 feet, total depth 3,805 feet in shale, initial production 66 bbls. per hour.

Hunt Production's No. 1 J. P. Maxwell, top sand 3,532 feet, total depth 3,600 feet in shale, initial production 20 bbls. in six hours. Rusk County Crude Oil Co.'s (formerly McDowell-Campbell's No. 3) No. 5 J. W. Wheelis, top sand 3,762 feet, total depth 3,792 feet, initial production 22 bbls. in 15 minutes through 2¼-inch tubing. Marathon Oil Co.'s No. 8 H. L. Griffin, top sand 3,610 feet, total depth 3,707 feet, initial production 20 bbls. per hour swabbing; No. 13 R. G. Mason, top sand 3,639 feet, total depth 3,660 feet, initial production 64 bbls. per hour. Great States Oil Co.'s (formerly North Star Oil Co.) No. 2 Mary Smith, top sand 3,600 feet, total depth 3,666 feet in shale, initial production 20 bbls. in two hours pumping. Seagull Oil Co.'s No. 3 Thrash, top sand 3,612 feet, total depth 3,698 feet, initial production 30 bbls. in 40 minutes. Slaughter and others' No. 1 Hughes (Frederick), top sand 3,523 feet, total depth 3,573 feet, initial production 20 bbls. per hour swabbing. Stanolind and Pure's No. 16 R. J. Burton, top sand 3,571 feet, total depth 3,602 feet in shale, initial production 20 bbls. in 30 minutes through 2-inch tubing. Stanolind Oil & Gas' No. 5 R. S. Russell, top sand 3,683 feet, total depth 3,764 feet, initial production 31 bbls. in 30 minutes.

Smith County

Brogan Oil Co.'s No. 5 T. O. Wright, top sand 3,716 feet, total depth 3,726 feet, initial production 40 bbls. in 30 minutes. Cockburn & Boase's No. 11 A. Green, top sand 3,763 feet, total depth 3,765 feet, initial production 40 bbls. per hour. Crone & Gracy's No. 6 A. S. Jarvis (Smith), top sand 3,680 feet, total depth 3,692 feet, initial production 55 bbls. per hour. W. B. Hamilton's No. 10 Gambrell, top sand 3,682 feet, total depth 3,692 feet, initial production 90 bbls. per hour. Magnolia Petroleum Co.'s No. 24 I. Wright, top sand 3,702 feet, total depth 3,710 feet, initial production 28 bbls. in 15 minutes. T. W. Medlin's No. 3 Mayfield, top sand 3,809 feet, total depth 3,810 feet, initial production 150 bbls. per hour. Sinclair Prairie's No. 24 D. Wright, top sand 3,723 feet, total depth 3,728 feet, initial production 30 bbls. in 15 minutes; No. 16 R. G. Wright, top sand 3,673 feet, total depth 3,683 feet, initial production 30 bbls. in 15 minutes. Sun Oil Co.'s No. 8-A J. J. Denton, top sand 3,746 feet, total depth 3,747 feet, initial production 90 bbls. per hour.

Upshur County

Gulf Production's No. 9 W. A. Ray, top sand 3,599 feet, total depth 3,601 feet, initial production 5 bbls. per hour pumping. Hickman & Beard's No. 11 T. E. Graves, top sand 3,609 feet, total depth 3,614 feet, initial production 72 bbls. per hour. Humble Oil & Refining's No. 30 I. D. Smith, top sand 3,632 feet, total depth 3,645 feet, initial production 74 bbls. per hour. Magnolia Petroleum's No. 26 J. W. Free, top sand 3,680 feet, total depth 3,683 feet, initial production 150 bbls. per hour.

MISCELLANEOUS COMPLETIONS

Henderson County

Pioneer Exploration Co.'s No. 1 Gentry, dry and abandoned 4,254 feet, elevation 382 feet.

Van Field—Van Zandt County

Humble Oil & Refining Co.'s No. 17 Blake, total depth 2,900 feet, initial production 123 bbls. the first hour. Wise and Jackson's No. 2 Sanger Brothers, total depth 2,926 feet, initial production 40 bbls. the first hour.

Price Lowering Caused No Increase in Demand

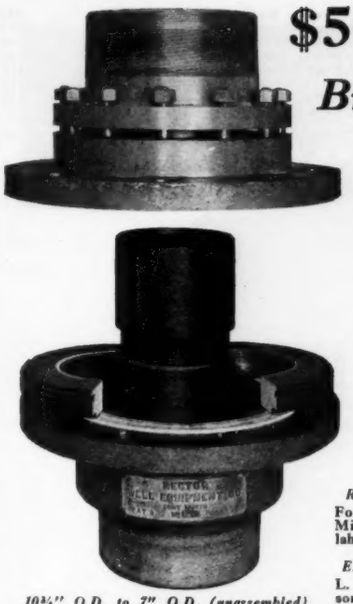
(Continued from Page 27)

tank wagon price in that territory. At this time, a 2¼-cent spread would mean 7 cents for the Nos. 2, 3 and 4 oils instead of the lower prices that now prevail. It is said that in New York, Philadelphia, Boston and other large furnace oil consuming points, there are concerns that are willing to distribute the oil to consumers from 1 to one-half cent above the delivered tank car prices. These are jobbers who as a group have complained that a 2-cent spread was not sufficient to cover operating costs plus a profit. This situation in the tank wagon markets has made it difficult to maintain tank car prices over the past few months despite the fact that the demand has been at least as great as last season.

No important price changes were reported during the week in the heavier fuels, lubricating oils and wax. Crude scale wax sales as low as 2.5 cents have been reported. Paraffin base neutrals oils also are easier.

TIDE WATER DIVIDEND

NEW YORK, Mar. 4.—Tide Water Oil Co. has declared a dividend of 35 cents per share on the 2,191,823 shares of common stock outstanding payable March 30, to stockholders of record March 11.



10¾" O.D. to 7" O.D. (unassembled) with Adapter Gland.

$50,000 DOWN

Bradenhead to go!

Today's methods of reckoning costs do not dictate the risking of a $50,000 investment . . . . or even half that amount . . . . by the small difference in the cost between two bradenheads. The few extra dollars paid for a RECTOR Head is more than justified by the extra dollars we spend in producing it to include features which may mean the difference between a safe job and destruction.

Made in 6,000, 3,000 and 1,500-lb. test, hammer forged steel.

Representatives at:
Fort Worth, Houston, Midland, Pampa, Oklahoma City.

EXPORT OFFICE:
L. C. Klein, 285 Madison Ave., N. Y. C.

RECTOR WELL EQUIPMENT CO. INC. RUGGED RELIABLE RECTOR RAPIDLY REPLACEABLE FORT WORTH, TEXAS, U.S.A.

A Turn for the Better!

WHEN you turn to welding with Tube-Turns*, you've reached the ultimate in piping. Lighter, stronger, neater. Usually cheaper. Always better because the entire piping system is uniform, like one continuous piece . . . . That's a condition you can get ONLY with Tube-Turns and welding.

TUBE-TURNS

* The word "Tube-Turns" is NOT a general name for welding fittings. Tube-Turns are THE seamless fittings having uniform wall-thickness at all points, true circular cross-section, uniform radius of curvature and smooth inner walls. Made ONLY by Tube-Turns, Incorporated, 403 Herald-Post Bldg., Louisville, Ky.

California Chapters Schedule Meetings

LOS ANGELES, Calif., Mar. 2.—The Los Angeles Basin Chapter of the American Petroleum Institute issues a cordial invitation to all oil men to attend its next regular meeting on Tuesday evening, March 12, in the Shell Oil Co. Recreation Hall, Long Beach, Calif.

An interesting program on Directional Drilling, a subject of great interest at the present time, has been arranged, as follows:

"Taming Wild Wells by Directional Drilling," by H. John Eastman, president, Eastman Oil Well Survey Co.

"Drilling Three Wells From One Location," by W. C. Whaley, vice president, Barnsdall Oil Co.

"Directional Drilling Problems of the Huntington Beach Tideland Development," by R. H. Garrison, consulting petroleum engineer.

"Legal Aspects of Crooked Holes," by Rush M. Blodget, general manager, Oil Producers Sales Agency.

The San Joaquin Valley Chapter will meet on Tuesday evening, March 19, at the Standard Oil Co. Recreation Hall in Taft, Calif.

ROCKY MOUNTAIN RUNS

Estimated daily average crude oil production for the week ending March 2 follows:

WYOMING	Bbls.
Salt Creek	17,690
Big Muddy	1,700
Badger Basin	40
Black Mountain	140
Byron	440
Dallas Derby	510
Dutton Creek	80
Elk Basin	530
Ferris	10
Frannie	240
Garland	380
Grass Creek	shut in
Hamilton Dome	780
Hudson	350
LaBarge	1,380
Lance Creek	680
Lost Soldier	1,760
Mule Creek	shut in
Midway	50
Notches	shut in
Oregon Basin	2,380
Osage	720
Pilot Butte	30
Rex Lake	shut in
Rock River	1,470
South Casper	shut in
Poison Spider	110
Teapot	20
Total Wyoming	31,390
MONTANA	
Buckley-Border	210
Cat Creek	730
Cut Bank	5,320
Kevin-Sunburst	3,410
Lake Basin	40
Pondera	1,100
Total Montana	10,810
COLORADO	
Florence	170
Fort Collins and Wellington	450
Iles Dome	2,830
Moffat	470
Orchard	70
Rangely	90
Tow Creek	220
Total Colorado	4,300
NEW MEXICO	
Artesia	580
Cooper area	3,010
Eunice area	4,360
Hobbs	31,220
Hogback	210
Hospah	shut in
Jal	3,380
Lea area	1,410
Maljamar	1,830
Rattlesnake	650
Table Mesa	70
Total New Mexico	46,720
Total Rocky Mountain region	93,220

GUY H. BILLINGS DEAD

Guy H. Billings, aged 45, assistant general manager and purchasing agent of the Four Wheel Drive Auto Co., Clintonville, Wis., died suddenly in his physician's office, where he had gone for consultation. Mr. Billings joined the company in 1913 and was made purchasing agent two years later.

TULSA REPRESENTATIVE

Joseph A. Coy has been appointed representative in the Tulsa territory for the Star Manufacturing Co. of Oklahoma City.

"Fugitive" Oil in Court as "Trapped" in Creek

AUSTIN, Tex., Mar. 4.—Whether thousands of barrels of oil was turned loose on purpose, so as to come within the "finder is keeper" principle of ownership of fugitive oil, was a fact issue members of the Texas attorney general's department Saturday had joined with oil men before U. S. district Judge R. J. McMillan at San Antonio.

Assistant Attorney Generals Archie D. Gray and Dick Holt returned from San Antonio, where they won two points of a preliminary skirmish in federal court. C. A. Davenport and H. W. McCurley claimed 35,000 bbls. of oil they had caught in "traps" in creeks near Gladewater became their oil under the law of capture. Their lawyers tendered affidavits to show the oil was strictly fugitive, and that the first to pick up waste or abandoned oil is entitled to it.

The attorney general's department offered affidavits claiming the oil was freed by design, with the intention that it should be caught and given access to commerce as "fugitive," and that they would show sources of oil fed into drainage ditches dug with P.W.A. funds.

The two oil operators were in court asking an order to compel the Railroad Commission to grant them shipping tenders, even though they could not show the original source of the oil. The order was not granted, and the case was set for hearing March 6, when Judge McMillan indicated he will consider affidavits of both sides.

The second point scored by the State's lawyers was that they should be permitted to cross-question witnesses whose affidavits were tendered by McCurley and Davenport.

NORTH TEXANS WILL MEET

The North Texas Oil & Gas Association will hold its fifth annual banquet in Wichita Falls, Tex., on Saturday, March 9. Speakers expected to be on the program are William McCraw, attorney general of Texas; Col. E. O. Thompson, chairman of the Texas Railroad Commission; R. N. Blakesly, safety director of the American Petroleum Institute, and Wirt Franklin, president of the Independent Petroleum Association of America.

A. C. WEED DIES

NEW YORK, Mar. 4.—Albert Childs Weed, vice president and director of Borne-Scrymser Co., petroleum product manufacturer, passed away suddenly at his home at Manhasset, Long Island.

Long a prominent figure in petroleum circles, Mr. Weed had been associated with the Borne-Scrymser Co. for 45 years, working his way from clerk to secretary, then treasurer and finally to vice president and director.

OIL MAN'S NARROW ESCAPE

HAMILTON, Ontario, Mar. 2.—Alfred L. Pearce, equipment superintendent of Imperial Oil, Ltd., narrowly escaped serious injury when his car skidded and plunged through a wooden guard rail over the T.H.&B. Railway cut, a drop of 40 feet.

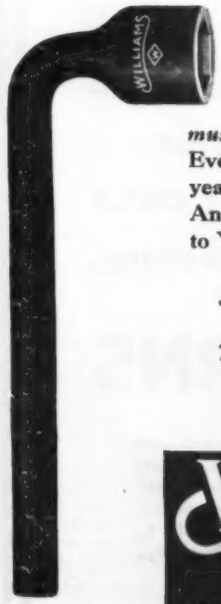
MRS. JOHN A. MACKENZIE DIES

PETROLIA, Ontario, Mar. 2.—Mrs. John A. Mackenzie died recently at the Charlotte Eleanor Englehart Hospital here, aged 77. Her husband, until his death two years ago, was manager of the Oil Well Supply Co., and closely associated with the Canadian petroleum industry.

B. J. SHAW DIES

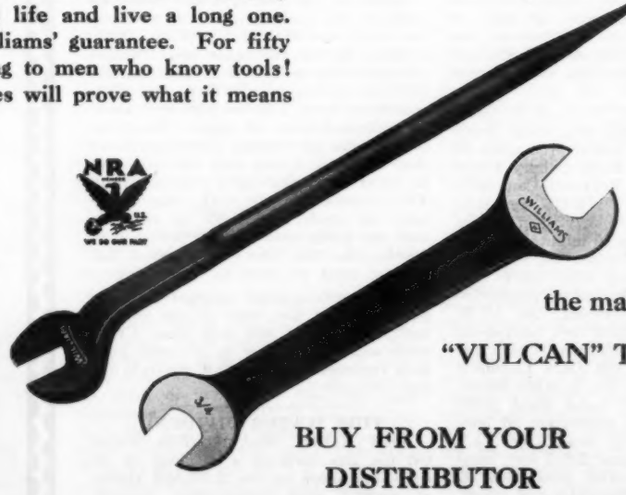
Bert J. Shaw, 58, president of the Shaw Oil Co., Dallas, Texas, died in Westbaden, Ind., February 22. He formerly operated in the Wichita Falls district and was at one time vice president in charge of production of the Panhandle Refining Co. and a member of the firm of Shaw and Rathke.

If it's a WILLIAMS' Wrench it's a BETTER WRENCH



If it's a WILLIAMS' Wrench, it's a tough, well-designed, better-balanced wrench that will enable any mechanic to do a *better* job! Ask your distributor to show you Williams' Drop-Forged Wrenches. "Try" them in your hand. Know that they are forged from specially selected steel. Realize that they *must* be tough—that they'll stand a hard life and live a long one. Every Williams' Wrench carries the Williams' guarantee. For fifty years that guarantee has meant something to men who know tools! Any one of 50 patterns in over 1,000 sizes will prove what it means to YOU!

J. H. WILLIAMS & CO.
"The Drop-Forging People"
75 Spring Street New York
Western Warehouse & Sales Office
Chicago . . . Works, Buffalo, N. Y.



BY the makers of "VULCAN" TONGS

BUY FROM YOUR DISTRIBUTOR

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
WRENCHES
MOST COMPLETE LINE IN U. S. A.

East Central Texas Wildcats

(Continued from Page 54)

L. P. Kean's No. 1 J. B. Hunter, R. Sowell Sur., 300 ft. from SW and 150 ft. from SE of 50-ac. tract, 4 miles S of Terrell. Coring 3,048 ft.

LIMESTONE COUNTY

Chapman's No. 1 Hunt, 200 ft. from N and 350 ft. from W line 34.75-ac. tract, Israel Wood Sur., 3 miles NE of Kosse. T.D. 3,617 ft.; top sand 3,589 ft.; to deepen.

C. F. Carter's No. 1 Dean, 660 ft. from SE and 330 ft. from SW lines of 75-ac. tract, P. Valella Sur., 3½ miles SW of Mexia. Fishing 1,717 ft.

Crawford's No. 1 Vol DeLong. T.D. 2,825 ft.; P.B. to 2,807 ft.; blowing little gas and wtr.

Doughtry et al's No. 1 S. Welch, 150 ft. from NW and 900 ft. from NE of 77.64-acre tract in A. Varilia Sur., 4 miles W of Groesbeck. S.D. 2,500 ft.

Magnolia Pet. Co.'s No. 28 Boyd, 300 ft. NE of No. 26 (Wortham Field). Rigged up.

Pure Oil Co.'s No. 6-S Ross, 1,500 ft. from N and 400 ft. from E of H. Ross Sur. (Mexia Field). Drlg. 660 ft.

McLENNAN COUNTY

Humble O. & R. Co.'s No. 1 O. Heitmueller, 2,306 ft. from E and 330 ft. from N, J. N. Smith Sur., 2 miles S of West. Drlg. 550 ft.

NACOGDOCHES COUNTY

Murray Oil Co.'s No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro, H. Y. Bailey Sur. Elev. 457 ft.; drlg. 3,135 ft.

L. & G. Oil Co.'s No. 1 Z. Ramblin, 900 ft. N and 330 ft. W of SE cor. of tract and survey, J. Simpson Sur., 12 miles NE of Nacogdoches. Drlg. 3,267 ft.

NAVARRO COUNTY

Bennett Brothers' No. 1 T. E. Stewart, 150 ft. from NE line of lease, 10 miles SW of Corsicana, Wm. R. Bowen Sur. S.D. 1,136 ft.

R. B. Codding et al's No. 1 Lela Kent, 450 ft. from S line and center of N and S lines of lease, 3 miles NE of Chatfield, C. B. Emmons Sur. S.D. 1,340 ft.

W. J. Keeling et al's No. 1 J. F. Rushing 484 ft. from N line and 150 ft. from W line of 154-ac. tract, 6 miles SW of Richardson, Henry Ford Sur. S.D. 2,880 ft.

McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-acre tract, 1 mile W of Dawson, William Moss Sur. S.D. 625 ft.

McGlothlin's No. 1 Dobbin, 150 ft. W and midway from N and S lines of 138-ac. tract, E. Lowry Sur., 2 miles N of Corsicana. Top hard Austin 1,295 ft.; S.D. 1,297 ft.

McGlothlin et al's No. 1 Barnett, 1,330 ft. N and 150 ft. W of 355-ac. tract, Elisha Powers Sur. Elev. 345 ft.; coring 3,500 ft.

Wiggins et al's No. 1 Donoho, 450 ft. from N and 1,101 ft. from E lines in John Couple Sur., SW of Corsicana. Drlg. 655 ft.

RED RIVER COUNTY

Dinger's No. 1 W. T. Norris, 1,000 ft. from S and 1,900 ft. from W of 400-ac. tract, Jos. Guest Sur., 1 mile S of Detroit. S.D. 1,250 ft.

RUSK COUNTY

George Hudson et al's No. 3 Jeff Phillips 150 ft. from N line of survey and 700 ft. from W line of 100-ac. tract, 4 miles SE of Minden N. Villaria Sur. S.D. 3,673 ft.

Ben Lamb's No. 1 H. Leath, 330 ft. out of NW cor. of 185-ac. tract in L. J. Dooley. S.D. 3,820 ft.; oil show; to test.

Richardson's No. 1 Wood. Derrick.

SMITH COUNTY

Cloud et al's No. 1 Dendall, 330 ft. from S and W of 55-ac. tract, J. Williams Sur., 3 miles E of Van Field. S.D. 1,340 ft.

Dr. Garland's No. 1 Bartlett, 330 ft. out of SE cor. of R. G. Steeart Sur., 1 mile SE of Jamestown, ½ mile E of Cloud. Drlg. 1,150 ft.

W. R. Harrison's No. 1 Rushing, J. Herring Sur. (O.W.D.D.). T.D. 4,673 ft.; tested hole full of S.W.

TITUS COUNTY

S. Rotondi's No. 1 Lillianstun, 1,200 ft. E from NW cor. of J. Bodt Sur. and 330 ft. N, but in W. H. Crawford Sur., 5 miles NE of Talco. Derrick.

VAN ZANDT COUNTY

Delcambre et al's No. 2 Crim, 400 ft. from S and 150 from E lines, Nacogdoches Co. School Lands. T.D. 1,327 ft.

Pet. P. L. & Storage Co.'s No. 4 Mrs. S. McGee, 450 ft. S of N line and 155 ft. E of W line of 52.4-ac. tract, Blk. 20. S.D. 1,265 ft.

Green and Winn's No. 1 Eaton, 330 ft. out of most westerly SW cor. of J. Wilson Sur., 2 miles SE of Martin. Location.

J. Beren et al's No. 1 Bryant, 433 ft. N of same operator's dry hole, Nacogdoches County School Land Sur. S.D. 1,325 ft.

Beren et al's No. 2 Palmer, 544 ft. from S and 686 ft. from E of 69.5-ac. tract, Nacogdoches County School Land. T.D. 1,324 ft.; to test.

Miller et al's No. 1 J. M. Palmer, 150 ft. from S and E lines of 69-ac. tract, Nacogdoches County School Land Sur. S.D. 1,188 ft.

M. Rouch et al's No. 1 Bearden & Palmer 150 ft. out of SE cor. of 61-ac. tract, Nacogdoches C.S.L. S.D. 1,237 ft.

WOOD COUNTY

Hill & Hill's No. 1 J. J. Phillips, 330 ft. from N and E, James M. Moore Sur., 5 miles S of Winnsboro. Location.

Texas Panhandle Wildcats

Week Ending March 2

CARSON COUNTY

McClintock et al's No. 1 Jordan, 660 ft. N, 413 ft. W Sec. 105, Blk. 4, I.&G.N. Sur. S.D. 3,120 ft.

Phillips Pet. Co.'s No. 1 Cooper, 330 ft. S and E, Sec. 4, Blk. 9, I.&G.N. Sur. T.P. 3,018 ft.; T.D. 3,055 ft.; swbd. 221 bbls. in 11 hrs.

CHILDRESS COUNTY

Humble O. & R. Co.'s No. 1-A Smith, 1,288 ft. S and 1,407 ft. W, Sec. 14, Blk. 9, H.&G.N. Sur. Drlg. 1,685 ft.

Watchorn O. & G. Co.'s No. 1 Low, C NW SE¼ Sec. 417, W.&N.W. Sur., 8 of Kirkland. S.D. 217 ft.

COLLINGSWORTH COUNTY

Andrews & Kerr's No. 1 Gideon-Bell, C NW NE Sec. 6, Blk. 13, H.&G.N. Sur. T.D. 2,201 ft.; P.B. to complete for gasser; shot with 20 qts. from 2,035-40 ft.; S.D. 2,117 ft.

COTTLE COUNTY

Texas Co.'s No. 7 Les K. Johnson, 1,950 ft. W of W line of Sec. 35, Blk. L, S.P.R.R., Foard County, and 500 ft. N of Anglin Sur. Drlg. 2,246 ft.

DALLAM COUNTY

Eben Warner's No. 1 Jarboe, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur. S.D. 3,200 ft.; may abandon.

GRAY COUNTY

Cambrian Oil Co.'s No. 1-B Saunders, 330 ft. N and E of S½ of NE¼ Sec. 4, Blk. 1, B.S.&F. Sur. S.D. 2,360 ft.

Champlin O. & R. Co.'s No. 1 Taylor, 330 ft. from S and W of Sec. 6, Blk. 8, H.&G.N. Sur. Location.

C. & H. Drlg. Co.'s No. 1 Binkley, 330 ft. from N and W of NE¼ Sec. 26, Blk. 24, H.&G.N. Sur. Location.

Clayton et al's No. 1 Taylor, 330 ft. N and W of NE¼ Sec. 51, Blk. B-2, H.&G.N. Sur. T.D. 2,333 ft.; standardized.

Warner's No. 1 Taylor, 330 ft. N and W of SE¼ Sec. 8, Blk. 8, A. W. Wallace Sur. Drlg. 368 ft.

Irish-American Oil Co.'s No. 1-B Morse, 990 ft. S and 330 ft. E, W½ NE Sec. 54, Blk. 25, H.&G.N. Sur. S.D. 2,650 ft.; 700 ft. oil in hole.

Jeffries' No. 1 Sailor, 330 ft. from N and E of E½ of NW¼ Sec. 149, Blk. 3, I.&G.N. Sur. Location.

Plains Holding Co.'s No. 1 Morse-Gulf, 330 ft. S and W, Sec. 57, Blk. 25, H.&G.N. Sur. Material.

Shell Pet. Corp.'s No. 1 Haggard, 330 ft. S and E of NW¼ Sec. 112, Blk. 3, H.&G.N. Sur. T.P. 3,202 ft.; T.D. 3,247 ft.; C.O.

Texas Co.'s No. 2-C Taylor, 330 ft. from N and E of E½ Sec. 52, Blk. B-2, H.&G.N. Sur. Location.

HUTCHINSON COUNTY

Huey et al's No. 1 Christian, 220 ft. from S and 330 ft. from W, Sec. 32, Blk. Y, A.&B. Sur. S.D. 3,145 ft.

Texilvania Oil Co.'s No. 1 Thompson, 440 ft. N and 2,735 ft. E, Sec. 15, Blk. M-22, T.C. Sur. Standard tools.

MOORE COUNTY

Sunray and Barnsdall Oil Companies' No. 2 Jones, 330 ft. from N and W of E½ Sec. 164, Blk. 3-7, T.&N.O. Sur. Rotary rig.

Texoma Nat. Gas Co.'s No. 1-P Moore, 2,310 ft. S and 330 ft. E of W½ Sec. 14, Blk. 44, H.&T.C. Sur. S.D. for csg. 2,962 ft.

OCHILTREE COUNTY

U. S. Oil Corp.'s No. 1 W. R. Norris, 330 ft. S and 990 ft. E, Sec. 212, Blk. 43, H.&T.C. Sur. Rigged up.

RANDALL COUNTY

English et al's No. 1 Oxnard. S.D. 5,620 ft. for csg.

WHEELER COUNTY

Johnson et al's No. 1 Pryor, 330 ft. N and E of E½ NE¼ Sec. 48, Blk. 13, H.&G.N. Rigged up.

LeFors Pet. Corp.'s No. 1 Perkins, 330 ft. from S line, 330 ft. from W line, Sec. 54, Blk. 24, H.&G.N. Sur. Rig.

Martin & Son's No. 1 Plummer, 330 ft. N and E NW SW Sec. 45, Blk. 45, H.&G.N. T.D. 2,640 ft.; to complete as gas well.

Reno Oil Co.'s No. 1 Mankins, SW SE SE Sec. 54, Blk. 13, H.&G.N. Sur. T.D. 2,216 ft.

Smith Bros.' No. 1 Johnson, 330 ft. N and W, Sec. 34, Blk. 24, H.&G.N. Sur. T.D. 2,200 ft.; set csg.

Smith Bros.' No. 1 Massey, C of NE¼ Sec. 14, Blk. 24, H.&G.N. Sur. Standard rig.

Smith Bros.' No. 1 Setter, 330 ft. from N and E of NW of NE¼ Sec. 33, Blk. 24, H.&G.N. Sur. Cellar.

Underwood et al's No. 1 Roach, 330 ft. N and E. Sec. 27, Blk. 24, H.&G.N. Sur. T.D. 2,110 ft.; 46,800,000 ft. of gas.

The Waukesha-Hesselman Oil Engine is in no sense a semi-Diesel. No preliminary warming up of hot bulbs or hot spots. It starts as easily, burns its fuel as cleanly, runs as smoothly as a gasoline engine . . . and develops equal or greater power.

The Hesselman cycle is as easily understood as the gasoline engine four-cycle. On the intake stroke, air alone is admitted to the cylinder . . . no fuel until compression is nearly completed. The charge of air is compressed to about 150 pounds, and just before the end of the compression stroke, the fuel is injected by a conventional Diesel injection pump. Owing to the form of the combustion chamber, the air is compressed in a definite turbulence pattern which picks up the finely atomized fuel from the injector, thoroughly mixes with it, and sweeps it as a highly combustible mixture, past the spark plug which ignites the charge. This starts the power stroke.

After the power stroke, the exhaust valve opens, the piston returns, the cylinder is scavenged, and thus prepared for a repetition of the cycle. Neither air nor fuel is preheated so that delivered power and volumetric efficiency are correspondingly high.

Write for Bulletin 1000. *Waukesha Motor Company, Waukesha, Wisconsin.*

THIS IS No. 2 OF A SERIES on the Hesselman Oil Engine. No. 3 will appear next month. A reprint of the complete series will be mailed on request.

WAUKESHA ENGINES

A Crooked HOLE is PROFIT ENEMY NUMBER ONE!

Protect yourself against it with the

H-K

(HEWITT) (KUSTER)

Clinograph

For use in open holes. Affords quick, accurate and economical readings of both the degree and direction of deviation from the vertical.

Permanent records on paper discs are available within five minutes after removing instrument from hole.

SPERRY-SUN WELL SURVEYING CO.

1608 Walnut Street, PHILADELPHIA, PA.

Tulsa, Oklahoma
425 Petroleum Building

Houston, Texas
3118 Blodgett Avenue

Los Angeles, California
415 Petroleum Securities Bldg.

West Texas Wildcats

(Continued from Page 57)

Empire Gas & Fuel Co.'s No. 1 Cummins, 440 ft. from S and E, Sec. 10, Blk. 45, Twp. 1n, T.&P. Sur.
Rigged up.
Standard tools.

O Farley's No. 1 Connell, 990 ft. from S and 330 ft. from E, Sec. 11, Blk. B-16, P.S.L. Sur.
Drlg. 3,422 ft.

Gulf Prod. Co.'s No. 1 Goldsmith, C of NW, Sec. 10, Blk. 44, Twp. 1s, T.&P. Sur.
Drlg. 1,030 ft.

International Pet. Corp.'s No. 1 Cowden, 660 ft. from S and E, Sec. 25, Blk. 44, Twp. 2s, T.&P. Sur.
Drlg. 2,385 ft.

Landreth Prod. Co.'s No. 1 Clarence Scherbauer, 660 ft. from S and E lines of Sec. 20, Blk. 44, Twp. 1n, T.&P. Sur.
T.D. 4,236 ft.; plugged back to 4,186 ft.; S.D.

Landreth Prod. Co.'s No. 1 Cowden Heirs, 440 ft. from S and W, Sec. 18, Blk. 44, Twp. 1n, T.&P. Sur.
Location.

Penrose et al's No. 1 Kloh & Rumsey, 2,310 ft. from S and E, Sec. 31, Blk. 45, Twp. 1s, T.&P. Sur.
Elev. 3,154 ft.; drlg. 1,970 ft.

Phillips Pet. Co.'s No. 1 Scharbauer, 990 ft. from S and 330 ft. from E, Sec. 16, Blk. B-15.
Drlg. 3,320 ft.

EL PASO COUNTY

Mesa Oil Co.'s No. 1 Coronado Valley.
S.D. 1,415 ft.

FISHER COUNTY

Merry Bros. and Perrini's No. 1 Howard. 1,320 ft. from N and 660 ft. from E, Sec. 18C, Blk. 2, H.&T.C. Sur.
T.P. 3,665 ft.; T.D. 3,679 ft.; plugged back 3,672 ft.; shut off water and oil. Drilled out plug to 3,674 ft.; putting on pump. Est. good for 100 bbls. day.

GLASSCOCK COUNTY

Capitan O. Co.'s No. 1 Gilliam, 2,310 ft. from S and 1,960 ft. from E, Sec. 21, Blk. 35, Twp. 2s, T.&P. Sur.
S.D. 60 ft. to rig up rotary.

John I. Moore et al's No. 1 McDowell, 2,310 ft. from S and 2,397 ft. from E, Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur.
Drlg. 360 ft.

John I. Moore et al's No. 1 J. S. McDowell. 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Top lime 9,520 ft. (Pennsylvanian, younger than the Bend) oil and gas show 9,484 ft. T.D. 9,471 ft.
S.D. for csg.; makes oil every half hour when circulated to prevent blowout.

HOWARD COUNTY

Dorn et al's No. 1 Kloh, 330 ft. from S and E, Sec. 45, Blk. 30, Twp. 1n, T.&P. Sur.
Ran csg. 630 ft.

C. Henson et al's No. 1 B. Scott, 330 ft. from N and 1,650 ft. from E, Sec. 93, Blk. 29, T.&P. Sur.
Drlg. 1,252 ft.

Slagel's No. 1 Foster, 990 ft. from S and 330 ft. from W, Sec. 43, Blk. 29.
Shut down.

IRION COUNTY

Lowe, Delaney et al's No. 5 Nutt, 490 ft. from N and E of SW¼ Sur. 6, Gonzales County School Lands.
Fag. 308 ft.

JEFF DAVIS COUNTY

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E, Sec. 8, Blk. 3, H.&T.C. Sur.
T.D. 645 ft., to run csg.

JONES COUNTY

Campbell et al's No. 1 Rowell, in E half of W half, Sec. 6, T.&P. Sur.
S.D. 900 ft.

Campbell et al's No. 1 Enevill, 1,400 ft. from N and 270 ft. from W, Sec. 2, M.E.&P. Sur., ¼ mile S of Anson.
S.D. 2,050 ft.

Cal-Tex Oil Co.'s No. 1 Smith, 1,400 ft. from S and 2,000 ft. from E, Sec. 25, Blk. 19, T.&P. Sur.
S.D. 1,500 ft.

Fondran Prod. Co.'s No. 1 S. R. Cox Jr., 200 ft. from S and 3,700 ft. from E, Sec. 74, Blk. 14, T.&P. Sur.
Spudded.

Dr. C. E. Johnson's No. 1 Young, 1,800 ft. from N and 750 ft. from W of SE 200 acres of B. Travenio Sur.
Drlg. 1,180 ft.

Owen et al's No. 1 Johnson & Dunwoody, 3,750 ft. from S and 330 ft. from W, Sec. 6, Blk. 17, T.&P. Sur.
Spudded and S.D.

Richards et al's No. 1 Ransom, 200 ft. from N and E, Sec. 244, B. M. Clopton Sur.
S.D. 750 ft.

T. K. Simmons' No. 1 T. M. Harrell, 200 ft. from S and 1,050 ft. from E of Sec. 7, Orphan Asylum Lands.
Drlg. 75 ft.

LOVING COUNTY

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft from N and 1,650 ft. from W, Sec. 12, Blk. 57, Twp. 1, T.&P. Sur.
S.D. 2,020 ft.

Mason Oil Co.'s No. 1 Kyle, 1,980 ft. from S and E, Sec. 22, Blk. 55, Twp. 1, T.&P. Sur.
Drlg. 425 ft.

LYNN COUNTY

Hart Oil Co.'s No. 1 Edwards, 330 ft. from N and 200 ft. from W of SE Sec. 39, L.&S.V. Sur.
Elev. 3,112 ft.; S.D. 3,954 ft.

MARTIN COUNTY

Wright & Scott's No. 1 Flannigan, 330 ft. N and E, Sec. 32, Blk. 37, Twp. 1s, T.&P. Sur.
S.D. 100 ft.

MITCHELL COUNTY

Sawtell & Grueber's No. 1 Morrison
S.D. 1,020 ft.

McCULLOCH COUNTY

Cardinal Oil Co.'s No. 4 White Baker, 270 ft. from N and 1,963 ft. from E, Dewey Sur.
Location.

Cardinal Oil Co.'s No. 3 White Baker, 1,302 ft. from N and 1,030 ft. from E, Sec. 3, W. Dewey Sur.
Missed pay, drlg. at 810 ft.

Goggins' No. 1 Craven Estate, 1,390 ft. from S and 2,480 ft. from W, Gus Dreiss Sur.
Drlg. 660 ft.

Honea et al's No. 1 Cox, 450 ft. from S and 150 ft. from E, David Pope Sur.
T.D. 805 ft.; underreaming csg.

Miller et al's No. 1 Black, 160 ft. from N and 175 ft. from E, Sur. 290, H.&T.C. Sur., 3 miles E of Placid.
T.D. 410 ft.; set csg.

Geo. Poulter et al's No. 1 J. R. Hall, 2,600 ft. from SE and 200 ft. from E, Sec. 192, State Sur., 12½ miles N of Brady.
Drlg. 330 ft.

Skaggs & Brewer's No. 1 Dunn, 190 ft. from S and 570 ft. from E, Sec. 951, T. L. Hartig Sur.
Set csg. 468 ft.

PECOS COUNTY

Cardinal Oil Co.'s No. 1 White & Baker, 330 ft. from N and E of S½ Sec. 4, Blk. 207, T.C. Sur.
Location.

Cardinal Oil Co.'s No. 1 White & Baker, 2,310 ft. from S and 330 ft. from W, Sec. 51, Blk. Z, T.C. Sur.
Drlg. 698 ft.

Gulf Prod. Co.'s No. 4 White & Baker, 2,310 ft. from N and 330 ft. from E, Sec. 46, Blk. Z, T.C. Sur.
Drlg. 1,510 ft.

Messenger's No. 1 Dr. Sibley, 4,930 ft. from S and 990 ft. from W, Sec. 6, Blk. 9, H.&G.N. Sur.
Location.

Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 27, Blk. 40, Twp. 9, T.&P. Sur.
S.D. 1,680 ft. for csg.

REAGAN COUNTY

Byrd-Frost Inc.'s No. 1 Boyd, 1,320 ft. from S and E of Sec. 6, Blk. E, L.V.S.&V. Sur.
Location.

Dobbs' No. 1 Friend, 2,310 ft. from S and 660 ft. from W of Blk. 3, Wm. Allen Sur., 3 or 4 miles S of Big Lake.
Drlg. 915 ft.

Skelly Oil Co.'s No. 1-D H. S. Grayson, 1,980 ft. from N line and 660 ft. from W line of Sec. 33, Blk. 8, University Land Sur.
Drlg. 9,457 ft.

REEVES COUNTY

J. E. Cunningham's No. 1 Altman, 2,810 ft. from N line and 1,980 ft. from E line of Sec. 1, C. C. Wyatt Sur.
T.D. 3,673 ft.; drlg. 2,851 ft. in new hole.

Herbert Oil Co.'s No. 1 Williams & Walker, 5,280 ft. from S and 1,320 ft. from E, Sec. 17, Blk. 6, H.&G.N. Sur.
Spudded and S.D.

K. Slack et al's No. 1 Reeves, 1,980 ft. from N and W, Sec. 20, Blk. 56, P.S.L. Sur.
Location.

RUNNELS COUNTY

Dennis et al's No. 1 Wash, 550 ft. from N and 560 ft. from E of W half, Sec. 133, E.T.R.R. Sur.
Spudded and S.D.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 3,475 ft. from W line of survey, Willett Holmes Sur. No 100.
S.D. 2,507 ft.

R. Wells' No. 1 James, 396 ft. from N and 330 ft. from E of James tract in Sec. 16, D. Diaz Sur.
S.D. 1,100 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur.
T.D. 5,987 ft.; to test below 2 packers.

W. C. Proctor et al's No. 1 Judkins & Spencer, 1,920 ft. from S and W of W. W. Russell grant.
Moved off tools.

SCURRY COUNTY

Coffield & Guthrie's No. 1 Holliday, 2,310 ft. from N and 330 ft. from W, Sec. 130, Blk. 97, H.&T.C. Sur.
Plugged back to 2,075 ft.; cleaning out.

McLaughlin's No. 1 Allen, 1,331 ft. from N and 1,338 ft. from E, Sec. 298, Blk. 97.
S.D. 485 ft.

STERLING COUNTY

Merry Bros. & Perrini's No. 1 Standaberry. 1,980 ft. from N and E, Sec. 26, Blk. 30, W.&N.W. Sur.
Drlg. 2,555 ft.

STONEWALL COUNTY

Merry Bros. and Perrini et al's No. 1 Williams, C SW of SW Sec. 6, Blk. C, A.B. &M. Sur.
S.D. 3,000 ft.

SUTTON COUNTY

Texas et al's No. 1 Mower, 1,980 ft. from S and W of Sec. 39, Blk. 5, T.W.&N.G. Sur.
Drlg. 3,947 ft.

TAYLOR COUNTY

Dunnigan Bros. et al's No. 2 Hunter, 225 ft. from S and 750 ft. from W, Sub. 14, Willis Sur.
T.P. 2,378 ft.; T.D. 2,425 ft.; swabbing 4 to 5 bbls. per day.

Eastland Oil Co.'s No. 1 Tittle, 660 ft. from N and W, Sec. 37, Blk. 19, T.&P. Sur., 1 mile NE of Trent.
Location.

TERRELL COUNTY

W. A. Sudderth's No. 1 Phelps, 2,157 ft. from N line and 2,482 ft. from the W line of Sec. 5, Blk. 4-A, G. W. Turley Sur.
S.D. 5,635 ft.

UPTON COUNTY

Baldridge Oil Co.'s No. 1 S. Peck, 440 ft. from S and E, Sec. 29, Blk. 41, Twp. 4s, T.&P. Sur.
Drlg. 1,356 ft

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur.
Cored from 11,291-11,305 ft.; no shows; drlg. 11,380 ft.

Humble Oil & Ref. Co.'s No. 1 Pollock, C of NW, Sec. 4, Blk. M.
Elev. 2,758 ft.; T.D. 2,359 ft.; straightening hole.

King Mountain Pet. Co.'s No. 1 Sherk, 330 ft. from S and W, Sec. 29, Blk. 1, M.K.&T. Sur.
Drlg. 1,280 ft.

Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur.
Testing at 2,060 ft.

WARD COUNTY

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 34, H.&T.C. Sur.
Drlg. 1,875 ft.

Atlantic Oil Prod. Co.'s No. 1 Monroe, 566 ft. SW and 350 ft. SE of E cor. of J. C. Russell Sur. No. 3, but in Sec. 2, J. V. Border's Sur.
Drlg. 2,372 ft.; heading.

Bradford et al's No. 1 E. R. Allen, 660 ft. from NW line and 551 ft. from NE line, Sec. 11, H.&T.C. Sur.
S.D. 760 ft.

Caprito's No. 1 Hardage & Wilson, 2,310 ft. from NE and 990 ft. from SE, Sec. 11, Blk. 34, H.&T.C. Sur.
Material.

Cook Drlg. Co.'s No. 1 Wood, 330 ft. from NW and SW, Sec. 5, W. F. Stewart Sur.
T.D. 2,548 ft.

Eastland Oil Co.'s No. 1 Richter, 2,310 ft. from NW and 330 ft. from SW of Sec. 23, Blk. 34, H.&T.C. Sur.
Location.

Gulf Prod. Co.'s No. 52 O'Brien.
T.D. 3,100 ft.; plugged back to shut off water; now testing.

Gulf Prod. Co.'s No. 55 O'Brien, 1,650 ft. N and 330 ft. from E, Sec. 18, Blk. F.
Drlg. 660 ft.

Gulf Prod. Co.'s No. 56 O'Brien, 2,310 ft. from N and 330 ft. from E, Sec. 18, Blk F.
Derrick.

Magnolia Pet. Co.'s No. 2 Sealy Estate, 2,310 ft. from S and 330 ft. from W, Sec. 43, Blk. F.
Derrick.

Postellio & Caprito's No. 1 Purcell, 330 ft from NE and 990 ft. from NW, Sec. 17, Blk. 34, H.&T.C. Sur.
Fishing 2,775 ft.

Rector Oil Co.'s No. 1 Monroe, 660 ft. from SE and NE, Sec. 2, Blk. 1, W.&N.W. Sur.
Drlg. cement 1,965 ft.

Sageland Oil Corp.'s No. 2 Pure-Bennett. 1,650 ft. from NW and 2,310 ft. from SW
S.D. 220 ft.

Jerry Sines' No. 1 Brown, 330 ft. from NW and NE, Sec. 13, Blk. 5, H.&T.C. Sur.
Derrick.

West Texas O. & R. Co.'s No. 1-C University, 330 ft. from N and E, Sec. 6, Blk. 16.
Drlg. 1,587 ft.

WINKLER COUNTY

Barnsdall Oil Co.'s No. 1 Brown & Aultman, 2,310 ft. from N and W, Sec. 6, Blk. 5, P.S.L. Sur.
Drlg. 1,076 ft.

Green Prod. Co.'s No. 1 J. F. Cross, 330 ft. from N and 2,310 ft. from W, Sec. 4, Blk. B-10, P.S.L. Sur.
Location.

Harry Adams' No. 2 Scarborough, 990 ft. from N line and 990 ft. from W line, Sec. 2, Blk. 77, P.S.L. Sur.
Location.

Humble Oil & Ref. Co.'s No. 2-A Walton, 660 ft. from S and W, Sec. 48, Blk. 26.
Derrick.

Jeffries et al's No. 1 Brown & Altman, 2,310 ft. from S and W, Sec. 6, Blk. B-5.
T.D. 3,200 ft.; made 64 bbls. by heads in 4 hours.

Dr. Jeffries et al's No. 1 Underwood, 330 ft. from S and 2,310 ft. from E, Sec. 26, Blk. B-3.
S.D. 800 ft.

Magnolia Pet. Co.'s No. 6 Watton, 330 ft. from S and 1,650 ft. from W, Sec. 1, Blk. 26, P.S.L. Sur.
Drlg. 890 ft.

J. C. Maxwell's No. 1 Clapp, 2,310 ft. from N and 330 ft. from E, Sec. 27, Blk. 26, P.S.L. Sur.
T.D. 3,487 ft.; plugged back to 3,200 ft.; now S.D.

Maxwell & Atlantic's No. 2 Daugherty, 990 ft. from S and 330 ft. from E, Sec. 11, Blk. 26, P.S.L. Sur.
Rigged up.

Mid-Continent Pet. Corp.'s No. 2 Howe, 1,650 ft. from N and 330 ft. from W, Sec. 12, Blk. 26.
T.D. 2,989 ft.; testing.

Richardson's No. 1 Walton, 1,010 ft. from S and 330 ft. from W, Sec. 1, Blk. B-3.
Drlg. 1,100 ft.

Sid Richardson's No. 1 Hill, 1,980 ft. from E line, 660 ft. from S line, Sec. 18, Blk. B-11, P.S.L. Sur.
T.D. 3,846 ft.; P.B. to 3,155 ft.; shot; made 68 bbls. in 17½ hrs.

Sayre Oil Co.'s No. 1 Leck, 330 ft. from S and E, Sec. 2, Blk. 26, P.S.L. Sur.
Fag. 2,749 ft.

Sayre Oil Co.'s No. 2 Howe, 330 ft. from N and W, Sec. 12, Blk. 26, P.S.L. Sur.
Location.

Skelly Oil Co.'s No. 2 Halley, 1,320 ft. from N and 2,200 ft. from E, Sec. 25, Blk. B-11, P.S.L. Sur.
Shut in 3,072 ft.

Siosi Oil Co.'s No. 1 Lowett, 330 ft. from N and E, Sec. 26, Blk. 26, P.S.L. Sur.
Spudded.

Sun Oil Co.'s No. 1 Halley, 2,200 ft. from N and 440 ft. from E, Sec. 24, Blk. B-12, P.S.L. Sur.
Drlg. 2,578 ft.

Texas Pacific Coal & Oil Co.'s No. 2 Daugherty, 1,650 ft. from S and 330 ft. from E, Sec. 2, Blk. 26, P.S.L. Survey.
Standard derrick.

Anahuac Area Well, Making 6 Bbls. Hour, Being Killed to Deepen; Shallow Producer at Iowa

By F. L. SINGLETON
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Mar. 4.—The Anahuac area, a geophysical prospect in northern Chambers County, Texas, was proven productive when Humble Oil & Refining Co.'s No. 1 Middleton was washed in and flowed at the rate of 6 bbls. per hour through a one-quarter inch choke with tubing pressure 2,430 pounds and casing pressure 2,475 pounds. It flowed at this rate for a few hours and is now being killed to drill deeper in attempt to increase its production.

The test is bottomed in 22 feet of Frio sand at a total depth of 7,050 feet, which was topped at 7,028 feet. It encountered the first gas sand from 6,999-7,016 feet and oil sand from 7,028-42 and 7,043-50 feet. The drill stem test made last week from 7,024-50 feet tested 6,900 feet of 33.5 gravity oil through a three-eighths inch choke on top and bottom and the gas pressure built up to 100 pounds.

The test is located about 6 miles east on Anahuac in Section 58, H.&T.C. Survey, on a block of approximately 12,000 acres, which is controlled solely by Humble Oil & Refining Co. The Gulf Production Co. has two sections a mile south and east of the well, and one section the same distance north. Sun Oil Co. holds leases to the northwest and has one 364-acre tract in Section 65, a mile southeast. The only abandonment in the area was drilled by Turnbull and Irwin on their Sudindorf lease, located approximately 3½ miles southwest, which was abandoned at a total depth of 7,937 feet. It topped the Discorbis at 6,370 feet, the Heterostegina at 6,810 feet and the Frio at 7,607 feet. Based on the latter marker the Middleton test is approximately 600 feet higher than the dry hole.

Another Producer at Iowa

The second well for the shallow horizon for the Iowa Field, Jefferson Davis Parish, Louisiana, was completed when Shell Petroleum Corp.'s No. 3 J. L. Johnson was completed for an initial production of 742 bbls. per day through a five-sixteenths inch choke, with tubing pressure 225 pounds and casing pressure 250 pounds. It was completed in 13 feet of oil sand bottomed at 4,441 feet. The only other well producing from this shallow sand is the company's No. 6 Heyd in Section 18-9s-7w, which is bottomed at 4,470 feet. Out of a total of 53 wells completed in the field, 8 are producing from the 6,600-foot horizon and 43 are producing from the 6,900-foot horizon, which is the discovery stratum and the principle producing sand.

In the Hastings Field, northeastern Brazoria County, Texas, considerable attention is being centered on Stanolind Oil & Gas Co.'s No. 1 Miller, located 2,000 feet east of the discovery well in the A.C.H.&B. Survey No. 2, which topped the first gas sand at 5,824 feet and is now coring for the oil sand below 5,870 feet. With an elevation of 49 feet and using the top of the Marginulina at 5,580 feet, it is checking approximately 236 feet higher than the company's No. 1 J. W. Surface, the discovery well, and indications at this time point to an extension to the field. The test topped the Discorbis from 5,130-60 feet and the Marginulina from 5,580-90 feet.

The discovery well, which has been worked over several times, due to faulty cementing jobs on casing and settings, has been successfully recompleted. The operators reset a full string of 5-inch casing on packer at 5,921 feet and on a 19-hour gauge ending at 7 a.m. March 2 the well flowed 236 bbls. of fluid, of which 20 per cent was wash water. Late in the week it was being tested through a three-sixteenths inch choke, and was flowing 11 bbls. per hour, with tubing pressure 1,500 pounds and casing pressure 675 pounds. The oil tested 30.5 gravity at a temperature of 52°. The company has two other rigs running and have reached an interesting depth at its No. 1 Steve Paul, located 2,100 feet south of the discovery in the A.C.H.&B. Survey No. 2. At 4,359 feet, the total depth, the operators made an electrical coring test and are waiting on cement to set after 9⅝-inch casing had been cemented at 4,353 feet. Located due north of the discovery, its No. 1 Wooser in the A.C.H.&B. Survey No. 1 is drilling in shale below 2,475 feet.

Two Tests Are Failures

The northern producing limits of the Eureka Heights area, Harris County, was definitely defined during the week, when two outpost tests being drilled by Means and McGehee were marked up as failures. The operator's No. 1 Laura Lackner, approximately three-quarters of a mile northwest of the discovery well in the Henry Reinerman Survey, was abandoned in shale at a total depth of 7,852 feet, in the Upper Saline Bayou. It topped the Discorbis at 3,746 feet. Heterostegina at 3,932 feet, Hockleyensis at 6,350 feet, Cockfield at 7,409 feet and the Upper Saline Bayou at 7,550 feet. One mile and a half north and a little west of the discovery their No. 1 Herbert Neuhaus, in the William P. Morton Survey, was abandoned in shale at 7,701 feet. Both of the wells are reported to have checked somewhat higher than the discovery, which is producing gas and distillate from the Cockfield sand at a total depth of 7,686 feet, but encountered only a thin section of this formation in this part of the field. With two dry holes to the north, it is general opinion that the best part of the field may be found to the south of the discovery, therefore much attention will be centered on Eureka Heights Oil Co.'s No. 1 Varner Realty Co., located 400 feet from the south line of 107.23-acre tract and 4,173 feet from the east line of the John Reinerman Survey, approximately 3,500 feet southwest of the discovery well.

Still a Distillate Producer

Pure Oil Co.'s No. 1 Shelor, in the Dickinson Field, Galveston County, and located in the B.B.B.&C. Survey, which was drilled deeper in an attempt to complete it as an oil well, was completed again for a distillate producer. It was deepened from 8,016 feet to 8,037 feet and was completed for an initial production of 60 bbls. of distillate per day, through a quarter-inch choke, with tubing pressure 2,000 pounds and casing pressure 2,000 pounds, making an estimated 2,500,000 feet of gas per day. The distillate tested 51 gravity and is considerably darker than that produced at its old total depth.

The deep test of Humble Oil & Refining Co.'s No. 1 Danielson, one-half mile southeast of the company's No. 1 Maco Stewart, a blowout test, in the John Sellers Survey, is coring in hard sand below 8,527 feet, with no shows being reported. The company's No. 1 H. O. and W. G. Jones, approximately 4,000 feet northeast of No. 1-B Maco Stewart, a producer, is drilling in shale below 7,955 feet. It topped the Discorbis from 6,540-70 feet, Heterostegina 6,811-41 feet and the Marginulina at 7,115 feet. It is reported to be checking about 50 feet lower than the producer. Southwest of the producer the company's No. 1 Schaper is coring in shale below 8,136 feet and is running lower than No. 1-B Maco Stewart, which is producing from a plugged back depth of 8,024 feet.

The deepest flank production for the Batson Field, western part of Hardin County, has apparently been found at John Deering and other's No. 1 Cruse, located on the south flank of the dome in the Willis Donoho Survey. It topped sand showing oil and gas from 5,555-67 feet and the operators have cemented 7-inch casing at 5,520 feet, preparatory to testing at a total depth of 5,567 feet. The first flank production was discovered on the dome by the same operators' No. 1 Hooks, which was completed at 4,954 feet for an initial production of 125 bbls. per day. The operators later drilled their No. 1 Jordon in the Willis Donoho Survey and completed for a well at a total depth of 4,927 feet. The Cruse test is west of the above two tests and apparently opens a deeper pay horizon from the Oligocene formation.

On the east flank of the Sour Lake Field, Hardin County, Alpha Petroleum Co. is preparing to test again its No. 2-A Weiss, located 3,500 to 4,000 feet east of the known dome. Several weeks ago the test showed promise of opening up the first important flank production from the Cockfield sand, when it made from 10 to 15 bbls. of oil and wash water per hour but soon sanded up and went dead. It was originally drilled to 6,808 feet, but was plugged back and sidetracked at 6,731 feet and redrilled to 6,774 feet, its present depth. The operators ran 80 feet of 5-inch O.D. blank liner to 6,774 feet and are now preparing to perforate the liner and test. This is the third test to be drilled on the east flank of the dome. Two other tests drilled in the area encountered favorable showings, but failed to make commercial wells.

Test Gets Gas

The eastern limits of the Cleveland Field, Liberty County, were defined for oil production, when Gulf Production Co.'s No. 8-C Kirby, located 933 feet due east of the company's No. 1-C Kirby, the discovery well, was completed for an estimated 3,000,000 feet of gas per day through a one-quarter inch choke, with tubing pressure 1,825 pounds and shut-in casing pressure 2,325 pounds. It is spraying a small amount of distillate. The test was originally drilled to 5,920 feet, but was plugged back to 5,753 feet after it tested salt water. Seven-inch casing was cemented at 5,723 feet. On the west side of the field the company has made location for No. 1 R. D. McDonald, located 467 feet from the north and east lines of the lease and survey in the Charles Smith Survey.

In the central part of Liberty County,

Wildcat Operations on Gulf Coast

Week Ending March 2

RACCOON BEND—AUSTIN COUNTY

Humble O. & R. Co.'s No. 7 Bellville, 550 ft. from NW line, 500 ft. from SW line, Wm. Smeathers & White Sur.
10¾-in. csg. 1,160 ft.

Humble O. & R. Co.'s No. 11-A Walton, 952 ft. from NW cor., 289 ft. at R/A from NE line, Wm. C. White Sur.
10¾-in. csg. 1,157 ft.

Humble O. & R. Co.'s No. 7-X Wilson, 3,095 ft. from SW cor., 464 ft. at R/A from SW line, Wm. Harvey Sur.
10¾-in. csg. 1,158 ft.; drlg. shale 2,674 ft.

Humble O. & R. Co.'s No. 1-B Machemehl. T.D. 4,147 ft.; I.P. 18 bbls. per hr. through ¼-in. choke; tubing pressure 480 lbs.; csg. pressure 580 lbs.

DANBURY—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 7 Blakely-Winston, 63 deg. 11 min. E, 5,540 ft. N, 26 deg 49 min. W, 200 ft. from SW cor. of Blakely-Winston 560-ac. tract, H.T.&B. Sur.
T.D. 6,253 ft.; P.B. to 6,000 ft.

Shell Pet. Corp.'s No. 3 Haury, 800 ft. SE of No. 2 in line with No. 2 and No. 1 Blakely-Winston, H.&T.B. Sur. No. 13.
T.D. 7,168 ft.; pulling tubing.

DAMON MOUND—BRAZORIA COUNTY

Gulf Stream, Inc.'s No. 1 Cave Heirs, 160 ft. from N line and 60 ft. from E line of Lot C, Blk. 50, A. Darst Sur.
D.S. stuck 1,744 ft.

Esco's No. 1-D Wisdom, 25 ft. from S and W lines of Blk. D, Lot 5, A. Darst Sur.
S.D. 1,563 ft.

HASTINGS—BRAZORIA COUNTY

Stanolind O. & G. Co.'s No. 1 Wooten, 466 ft. S of N line, 466 ft. from SE line of 70-ac. tract, A.C.H.&B. Sur. No. 1.
Drlg. shale 2,475 ft.

Stanolind O. & G. Co.'s No. 1 W. J. Miller, 466 ft. out of SW cor. of the Miller 3,939-ac. tract, in A.C.H.&B. Sur. No. 2, 2,000 ft. E of discovery well.
Coring gas sand 5,870 ft.

Stanolind O. & G. Co.'s No. 1 Steve Paul, 476 ft. from the E line and 464 ft. from N line of 160-ac. tract, A.C.H.&B. Sur. No 2, 2,100 ft. S of discovery well.
9⅝-in. csg. 4,353 ft.

MANVEL—BRAZORIA COUNTY

Texas Co.'s No. 2 Gulf Coast Home Co., 247 ft. S, 441 ft. W from NE cor. of Lot 38, H.T.&B. Sur. No. 2-B.
Rigging up.

Bowles & Borsodi's No. 2 Norvell Investment Co., C of Lot 57, H.&T.C. Sur.
Location.

Bowles & Borsodi's No. 3 Norvell Investment Co., Blk. 46, H.&T.C. Sur. No. 22.
7-in. csg. 5,626 ft.; T.D. 5,653 ft.

Gulf Prod. Co.'s No. 1 T. L. Ellis, 330 ft. each way out of S cor. of 80-ac. lease, H. Little Sur.
Drlg. shale 494 ft.

J. W. Sorrells' No. 1 Swift, Blk. 21, Abst. 318, H. N. Little Sur.
Derrick.

Sterling O. & R. Co.'s No. 1 W. A. Gamble, 300 ft. from E line and center N and S of Lot 78, E. Little Sur.
Spudded.

E. H. Stone's No. 1 H. McCauley, 350 ft. from E line, 300 ft. from S line of Lot 2, A.C.H.&B. Sur.
10-in. csg. 1,000 ft.; drlg. gumbo 2,220 ft.

Texas Co.'s No. 6 Ewing, 330 ft. N, 47 deg., 59 ft. W and 263 ft. S, 41 deg., 40 ft. W of SE cor. of lease.
Drlg. sand 3,656 ft.

Texas Co.'s No. 1 C. P. Dawson, 2,475 ft. S, 441.9 ft. W of NE cor. of Lot 59, H.T.&B. Sur. No. 23.
Drlg. shale and lime 5,593 ft.

Texas Co.'s No. 3 A.R.G.G.H. Co., in C of Lot 37, H.&T.C. Sur. No. 23.
Drlg. sand and shale 4,405 ft.

Texas Co.'s No. 10-A Belcher, N 42 deg. E 330 ft. and N 48 deg. W 330 ft. from S cor. of Belcher "A" lease, H. N. Little Sur.
Drlg. sandy shale 6,091 ft.

Texas Co.'s No. 17 Houston Oil Fields Assn., 244 ft. S, 244 ft. W, from NE cor. of Lot 1, A.C.H.&B. Sur. No. 91.
Location.

Texas Co.'s No. 16 Houston Oil Fields Assn., 247 ft. S, 440 ft. E from NW cor. of Lot 19, A.C.H.&B. Sur., No. 91.
Location.

Texas Co.'s No. 1 J. L. Lemmer, 330 ft. S 48 deg. E and 330 ft. N, 42 deg. E of W cor. of lease, Thomas Sproggins Sur., Abst. A-366.
Drlg. sand 5,771 ft.

Texas Co.'s No. 2 Dawson, 247 ft. S, 241 ft. W of NE cor. of Lot 58, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 1 L. C. Dawson, 247 ft. S, 441 ft. W of NE cor. of Lot 49, H.T.&B. Sur. No. 23.
Location.

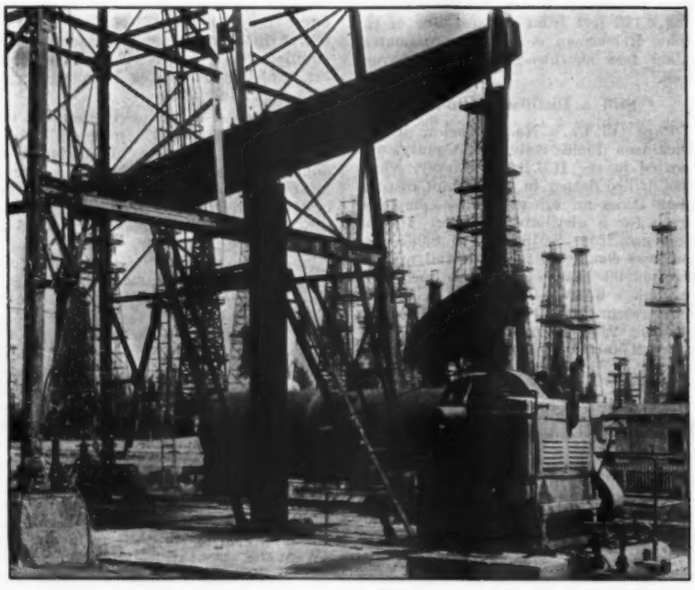
Texas Co.'s No. 2 Dawson, 247 ft. S, 441 ft. W of NE cor. Lot 48, H.T.&B. Sur. No. 23.
Location.

Trumba Oil Co.'s (J. M. Campbell) No. 1 H. McCauley, 150 ft. each way out of NE cor. of W 5 acres of Lot No. 2, A.C. H.&B. Sur. No. 91.
Location.

(Continued on Next Page)

Ask for Performance and Economy Test Data on the

New Triple-Saving Case Engines



SAVINGS

- In Original Cost
- In Fuel and Oil
- In Labor

These important items spell the difference between profitable and unprofitable equipment. Case Oil Field Engines insure maximum economy in every way.

Other Case features of importance to every oil field operator include:

—uniform power torque at all operating speeds;
—simple controls and adjustments requiring a minimum of inexpensive labor;
—remarkable freedom from repairs and shut-downs;
—quick availability of Case service everywhere.

All these mean maximum economy and satisfaction for the operator.

Don't buy a new engine or replace an old one without getting all the facts about the real savings Case engines can make for you.

J. I. CASE CO., *Racine, Wis.*
Factory branches in important distributing centers

CASE

Jack W. Frazier and others have made location for No. 1 Lynott and Buffum in the James Robeson Survey. Location is 466 feet from the north and east lines of Frazier's 60-acre tract in the extreme southeastern part of the survey. This is southwest of Turnbull and Irwin's No. 1 Lynott and Buffum in the same survey, which was abandoned at a total depth of 7,511 feet after it tested salt water.

Showing in Manvel Area

The deep pay found in the south end of the Manvel Field, Brazoria County, and recently proven productive in the north end of the field by Bowles and Borsodi, has apparently been extended another 500 feet north due to the showing made on a drill stem test at the same operators' No. 3 Norvell Investment Co., which tested 300 feet of clean oil on a seven-minute drill stem test from 5,026-53 feet through a one-quarter inch choke on top and bottom, and 50 pounds of working pressure. The first oil showing was encountered in sand and sandy shale at 5,625 feet, and the operators have cemented 7-inch casing at 5,620 feet, and will probably drill plug the first part of the week. In the south end of the field Texas Co.'s No. 10-A Belcher has apparently missed the pay in its No. 10-A Belcher in the H. N. Little Survey, as it is coring in sandy shale below 6,091 feet which is considerable deeper than other producing wells in this part of the field.

Another good well was registered for the Kittrell Field, south Houston County, when Humble Oil & Refining Co.'s completed its No. 7 Shaw in the Charles McEllis Survey for an initial production of 28 bbls. per hour through a one-half inch choke, with tubing pressure 180 pounds and casing pressure 580 pounds. It is bottomed at 2,031 feet with 7-inch casing cemented at 1,975 feet. Sun Oil Co. has made location for its second test. It is No. 2 Huffman and offsets the above company's No. 5 Shaw in the Charles McEllis Survey. The company's first test was abandoned as a failure.

Conroe Trend Test

The first Conroe trend test to be announced in coastal Louisiana for several months was made by Chew and Kirby Drilling Co. for No. 1 Long Bell Lumber Co., located 330 feet south and 330 feet west of the C NE Section 26-2s-8w. It is in the Rena district, approximately 7 miles west of DeRidder. The operators received a cash consideration and an interest in 4,000 acres for the drilling of the test. Gulf Refining Co., large lease holder in the area, sub-leased 4,000 acres to McCormick and Lyvers, who made the deal with Chew & Kirby Drilling Co.

One mile south of Shell Petroleum Corp.'s No. 1 Kratzer, the discovery well of the Roanoke Field, Jefferson Davis Parish, Humble Oil & Refining Co.'s No. 2 Kratzer cored sand and shale showing oil from 8,650-67 feet and is standing with 7-inch casing cemented at 8,643 feet and bottomed at 8,671 feet. This is the first test to encounter the same pay horizon from which the discovery well is producing, and its completion is being watched with considerable interest. The company is building derrick for its No. 2-B J. W. Devilbiss, a recent location south of the above test.

Superior Oil Producing Co.'s No. 4 Hermandez, within the proven limits of the Bosco Field, was completed at a total depth of 8,683 feet for an initial production of 180 bbls. in seven and one-half hours through a ten-sixty-fourths inch choke, with tubing pressure 1,000 pounds and casing pressure 1,300 pounds. Seven-inch casing was cemented at 8,663 feet. On the extreme southwestern side of the field, Oswego Oil Co.'s (Standard Oil Co. of Kansas) No. 1 Mouton is scheduled to be completed the first part of the week. Seven-inch casing has been cemented at 8,507 feet and the operators are waiting for cement to set at a total depth of 8,607 feet.

Wildcat Operations on Gulf Coast

(Continued from Preceding Page)

STRATTON RIDGE—BRAZORIA COUNTY
Amerada Pet. Corp.'s No. 1 Seider & State, 225 ft. due N of No. 3.
Drlg. wtr. sand 4,580 ft.

WEST COLUMBIA—BRAZORIA COUNTY
Sterling O. & R. Co.'s No. 4 Hogg, 200 ft. S of No. 1, 50 ft. from W line of lease, Martin Verner Sur.
T.D. 5,298 ft.; cmt. back to 4,850 ft.; drilled out cmt. to 5,190 ft.; S.D.
Texas Co.'s No. 34 Hogg, 2,483 ft. N, 50 ft. W from SE cor. of lease, M. Varner Sur.
Temporarily S.D. 5,242 ft.

BARBERS HILL—CHAMBERS COUNTY
Moody Corp.'s No. 1-C E. W. Barber, 302 ft. from N line and 312 ft. from E line of "B" lease, H. Griffith Sur.
Reaming to set csg. 5,200 ft.
Humble O. & R. Co.'s No. 8-B Kirby, 200 ft. N of No. 2, 100 ft. W of E line, Henry Griffith League.
Drlg. salt 3,331 ft.
McAlbert Oil Co.'s No. 3-B Heggins, 50 ft. S of N line and 50 ft. E of W line.
Drlg. shale 475 ft.
Sun Oil Co.'s No. 15 Wilburn, 405 ft. from E and 50 ft. from W line of lease, Wm. Hodges Sur.
Running tubing 5,218 ft.
Sun Oil Co.'s No. 17 Wilburn fee, 188 ft. E of W line and 40 ft. S of N line and 126 ft. W of No. 16.
8⅝-in. 1,389 ft.; T.D. 1,403 ft.
Texas Gulf Prod. Co.'s No. 12-A Kirby, 612 ft. N of S line, 85 ft. W of E line, W of Humble O. & R. Co.'s No. 8-B Kirby.
Drlg. rock 1,824 ft.
Texas Gulf Prod. Co.'s No. 3 T. S. Fitzgerald, 340 ft. S of N line and 60 ft. E of W line of lease.
Top oil sand 4,076 ft.; coring sand 4,100 ft.
Texas Gulf Prod. Co.'s No. 2 Morgan Fitzgerald, 400 ft. N of S line, C of Strip No. 3.
T.D. 5,103 ft.; P.B. to 4,611 ft.; set whipstock.
Texas Co.'s No. 10 Wilburn, 475.8 ft. N, 29 deg., 10 ft. W from SW cor. of lease
9⅝-in. csg. 4,717 ft.; T.D. 4,838 ft.; I.P. 395 bbls. per day through ¼-in. choke.
Yount Lee Oil Co.'s No. 27 Chambers Co., 400 ft. W of No. 24 and in line with Nos. 24 and 21.
7⅝-in. csg. 4,503 ft.; flowed 290 bbls. per day through ¼-in. choke; 280 lbs. pressure.
Yount Lee Oil Co.'s No. 28 Chambers County, 50 ft. N of S line, direct offset to Sun's No. 10 Chambers County, Wm. Bloodgood Sur.
Cmtd. csg. 435 ft.

BOLING—FORT BEND COUNTY
Allied Minerals, Inc.'s No. 1 J. H. Blackwell, 1,400 ft. from E line, 100 ft. from S line of 50-ac. of J. H. Blackwell 100 ac., John Huff Sur.
Abd. 5,280 ft.
Allied Minerals, Inc.'s No. 1 E. C. Farmer, James Scott League, 750 ft. SE of NW line and 150 ft. SW of NE line of Gulf Prod. Co.'s E. C. Farmer 50-ac. tract.
Replugging the hole.
Irwin Larsen et al's No. 1 J. R. Farmer, 100 ft. NW and 100 ft. SW from E cor. of 125-ac. lease, James Scott Sur.
Location.
Midland Oil Co.'s No. 1 P. F. Coulter, 150 ft. from S line, 4,174 ft. from W line of 100-ac. tract, Miller League No. 2.
Set screen; T.D. 4,136 ft.
Navarro Oil Co.'s No. 1 H. R. Farmer, 300 ft. from SW line and 100 ft. from SE line of 168-ac. tract in James Scott Sur.
Prepare to spud.
Trans-State Oil Co.'s No. 1 Dipple, 480 ft. from NW and 347 ft. from SW lines of 33-ac. tract, E flank of dome.
Drlg. 1,280 ft.

ORCHARD—FORT BEND COUNTY
Gulf Prod. Co.'s No. 41 Moore, 3,372 ft. S along W line from NW cor. of James Frazier Sur., and 2,154 ft. at R/A.
Drlg. sand 2,646 ft.
Gulf Prod. Co.'s No. 42 Moore, 345 ft. S, 305 ft. W of SW cor. of E.M.G. Co. Sur.
Drlg. sand 1,203 ft.
Gulf Prod. Co.'s No. 43 Moore, 350 ft. E along S line of SW cor. of E.M.&G. Co. Sur. and 740 ft. N at R/A to said line of lease, 350 ft. E of No. 3 Moore.
Building derrick.
Gulf Prod. Co.'s No. 1 R. D. McDonald, 467 ft. from N and E lines of lease and survey, Chas. Smith Sur.
Location.

HIGH ISLAND—GALVESTON COUNTY
Yount Lee Oil Co.'s No. 45 Cade.
Drlg. sand and lime 4,150 ft.
Yount Lee Oil Co.'s No. 23 Smith.
D.S. stuck at 5,080 ft.; fishing.
Yount Lee Oil Co.'s No. 1-A Gordon-Viterbo, 122 ft. E of W line, 326 ft. S of N line of Lot 1, Martin Dunman Sur.
Rig up.
Yount Lee Oil Co.'s No. 1 Loustalbot, 300 ft. from N line, 121 ft. from E line of Lot No. 3, offset to No. 2 Stewart, Martin Dunman Sur.
Set surface csg. 1,330 ft.
Yount Lee Oil Co.'s No. 1 F. C. Pabst, 1,186 ft. S of N line and 1,186 ft. E of W line of Lot 32, Martin Dunman Sur.
Drlg. shale 1,200 ft.
Yount Lee Oil Co.'s No. 44 Cade.
Drlg. sand and shale 4,939 ft.

(Continued on Page 90)

RED BALL CUTTING SERVICE

At the Head of the Table in Our Business

The RED BALL Cutting Service has consistently cut and recovered more pipe than all other cutting services combined in the territory where we operate.

J. S. Abercrombie Co.
21st FLOOR GULF BLDG.
HOUSTON - TEXAS

TANK *Painting*

Reconditioning
Corrosion Treatment
and Sand-blasting
Complete Workmen's Compensation and Liability Insurance

AIR SPRAY PAINTING CO., Inc.
BOX 5005 - - - DALLAS, TEXAS

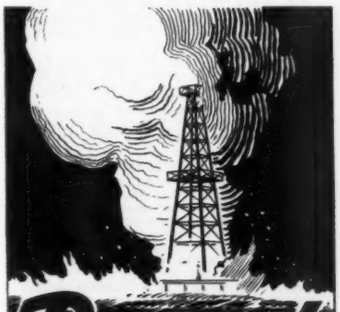
Rental Service on
BAKER WALL SCRAPER
in the Gulf Coast.

Branches:
Palestine
Kilgore
Freer
Sam Fordyce, Texas.
Eunice, N.M.

Branches:
Lake Charles & Houma, La.

Other Stocks:
Cleveland
Louise
Livingston
Refugio

"Cutting and Fishing Tool Service"



Prevent Blowouts
WITH
SHAFFER CELLAR CONTROL GATES••

SHAFFER TOOL WORKS
BREA, CALIFORNIA — HOUSTON, TEXAS
FORMERLY OIL WELL SUPPLY CO.

Among Gulf Coast Drilling Contractors

One of the most interesting wells on which a drilling contractor is drilling in the Gulf Coast is Amerada Petroleum Corp.'s No. 1 Houston Farm Development Co., in the L. Bachelder Survey No. 156, Brazoria County. This projected 8,000-foot wildcat is on the east bank of Chocolate Bayou, south of the Liverpool station, and is being drilled by the Noble Drilling Co. Location is semi-marine, with final access to the rig being made via motorboat. When a stiff norther blows, tide is lowered several feet and the rig is said to become totally inaccessible—as land travel is impossible, water travel out of the question, and air travel limited to planes which can land on a soft-silt mud flat. This well was spudded early in July, 1934, and 65 feet of 21-inch surface casing was set. At 1,512 feet 16-inch casing was landed. On July 20, the hole had been carried to 4,380 feet. An abbreviated log of operations, carried in The Oil & Gas Journal's Houston office, records the following data: July 27, "shutdown to clean hole after storm"; August 3, "drill stem stuck, 5,963 feet"; October 5, "set 6,736 feet of 11¾-inch casing" (no small accomplishment); November 11, "fishing"; November 16, "plugged back to 7,172 feet"; January 3, "unable to clean hole, cemented back to 6,650 feet, waiting on cement to set"; January 18, "set whipstock"; January 25, "drilling 7,040 feet"; February 1, "twisted off at 6,841 feet, cemented back to 6,736, waiting on cement"; February 8, "set whipstock and drilling at 6,900 feet"; February 15, "ran 302 feet of 7-inch liner and screen, and drill stem stuck. Preparing to wash over fish." All of which illustrates the degree of contrariness which some Gulf Coast wildcats can exhibit, and further explains why drilling contractors must, as the saying goes, "live right" to get by in this area.

Curtis & Spangler, Oklahoma City contractors, have moved a rig into Conroe and will drill a well for the Strake Petroleum Corp.

Carlisle & Williams, who have completed repairs on their heavy gasoline rig, are drilling at 1,700 feet on a wildcat well in Bandera County.

C. & R. G. Drilling Co., which is drilling a projected 8,500-foot test for George W. Strake on Mustang Dome, Brazoria County, continues to wrestle with hard formations, averaging 10 to 20 feet per bit. Test is drilling at 5,814 feet. A previous well dug by C. & R. G. 991 feet east of Strake's test, encountered almost no hard digging—a condition which has observers guessing.

Frank Long, who has been shut down for several weeks on a 6,000 foot wildcat test in Willacy County for W. T. Daniels, et al, has started up again and is drilling below 4,000 feet.

Edwards Drilling Co. is drilling below 6,700 feet on a projected 8,500-foot test at Charenton Dome, St. Mary's Parish, La. Company has completed deepening a well at Dickinson, Galveston County, for the Pure Oil Co., which is making 60 bbls. of distillate per day with heavy gas pressure.

Glenn H. McCarthy, Inc., has completed No. 2 Foster as a good well for West Production Co. in the Conroe Field, Montgomery County.

Alamo Drilling Co., having abandoned its two tests in the Eureka Heights Field, Harris County, has made location and is moving rig to a new location southeast of the discovery well. No. 1 Laura Lackner was abandoned at 7,852 feet, and No. 1 Neuhaus was abandoned at 7,701 feet. Discovery well was completed at 7,686 feet. The new test will be designated Varner No. 1.

Turnbull & Irwin are drilling below 1,200 feet on a wildcat test in the Jessie Cartwright Survey, Fort Bend County, for themselves and others.

Noble Drilling Co. Crew in Hastings Field

Among the several Oklahoma drilling contractors with rigs running in the Gulf Coast is the Noble Drilling Co., one of whose crews, working on Stanolind Oil & Gas Co.'s Wooster No. 1, Hastings field, Brazoria County, is shown above. Stanley Pearson (extreme left) is morning tower driller. Other members of the crew shown are: Ross Durham, fireman; M. J. Barnes, floorman; H. Wright, derrickman; C. P. Bryan, floorman. Dewey Morris, tool pusher on this rig, was not on the lease at the time picture was taken. Noble Drilling Co. also has a rig running for the Amerada Petroleum Corp. on Rattlesnake Mound, Brazoria County, wildcat described in this column. Blackie Manning is tool pusher on this rig

Will Your PREVENTER
close instantly
and
Can it be closed from a remote point?

The safety of your well depends on these two features

CAMERON'S Double Pressure Type Preventer is remotely **closed** and **opened instantly** with hydraulic pressure, by the mere turn of a valve.

CAMERON'S "MP" Type Preventer is **remotely closed instantly** with hydraulic pressure, by the mere turn of a valve . . . . and opened manually, after the emergency is over.

Both types are locked securely by hand screws, following the instantaneous closing effected by fluid under pressure.

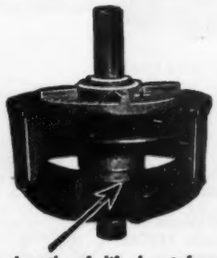
Write for Catalog on Well Control

CAMERON
IRON WORKS, *Inc.*
HOUSTON, TEXAS

DISTRICT REPRESENTATIVES:
A. D. ENGLE, Oklahoma City, Okla.
W. P. KNIGHT, Midland, Texas.
A. B. SMITH, Lafayette, La.

Export: 74 Trinity Place, N. Y. C.

MISSION VALVES



Give length of life heretofore believed impossible in slush pump valve service.

Also use MISSION PISTONS

MISSION MANUFACTURING CO.
HOUSTON . . . TEXAS

Neal H. Anderson Heads Oil Producers Agency

Neal H. Anderson, former oil umpire in California, who has been elected president of the Oil Producers Agency of California, successor to the Oil Producers Sales Agency.

NEAL H. ANDERSON

GULF LEASES IN MISSISSIPPI

JACKSON, Miss., Mar. 4. — Mineral rights on approximately 6,000 acres of land in Stone County belonging to the University of Mississippi have been leased to the Gulf Refining Co. by the board of trustees of higher institutions.

The lease runs for two years and the company is to pay 50 cents per acre. The company must begin drilling operations within four months.

For GUYING DERRICKS

Here is the quick, safe, BEST means of guying Derricks and poles. Everstick Anchors are standard equipment with largest telephone and utility companies. Their great strength and holding power, plus speed of installation provide the ideal guy anchorage for Oil Well Derricks.

Eversticks are offered in a complete line of Guy Anchors in 2-way, 3-way and 4-way expanding types. Special features assure safe anchorage far in excess of rated holding power.

All Everstick Anchors are made of Certified Malleable Iron—noted for its qualities of great tensile strength and rust resistance.

Latest Bulletin No. 1134 Gladly Mailed on Request.

EVERSTICK ANCHOR COMPANY
Fairfield, Iowa.

EVERSTICK ANCHORS...

Southwest Texas Wildcats

(Continued from Page 56)

GILLESPIE COUNTY

Ed L. Nixon's No. 3 Lindig, 12,694 ft. S line, 1,333 ft. W line, Maria Josepha Guerra Sur. No. 41.
S.D. in lime 692 ft.

GONZALES COUNTY

Southwestern Dev. Co.'s (Kyle & Von Rossun) No. 1 W. S. Atkinson, 2,054 ft. from N line, 1,034 ft. from E line of 185-ac. tract in S. Y. Reams Sur.
W.O.C. 36 ft.

GUADALUPE COUNTY

J. W. Burrows' No. 1 Beuhring, 1,000 ft. S line, 750 ft. W line of Jos. Clements Sur., SW Darst Creek Field.
Location.
C. W. DeFreest's No. 1 Henry Beck.
Moving in material.
A. D. Locke's No. 1 Lowman, 210 ft. from SE and SW lines of 2,500-ac. tract in C. Campbell Sur.
Moving in spudder.
Seidemann et al's No. 2 Seidemann, 400 ft. from NW line, 360 ft. from NE line of 147.5-ac. tract, Esnaurrizer Sur.
Drlg. 200 ft.

HIDALGO COUNTY

D. & D. Oil Co.'s (Clay, Spencer & Hood) No. 1 Brooks & Showers, 330 ft. N and E lines of Lot 4, Blk. 26, Por. 79-80.
Recmtd. whipstock at 2,970 ft.; W.O.C.
Hardy & Lynch's No. 1 Southland Dev. Co., 330 ft. N and W lines, Blk. 14, Por. 17.
Spudded and S.D.
Kingwood Oil Co.'s No. 1 Doughty, 1,214 ft. from N line, 3,750 ft. from W line of Tract 90, in San Salvador del Tule grant.
Drlg. 5,700 ft.
Maxwell-Young's No. 1 King, 175 ft. N and E lines of Lot 8, Blk. 11.
T.D. 875 ft.; standing.
Downey & Morton's No. 1 Daskom, 450 ft. from E line, 55 ft. from S line of Blk. 34, Por. 45.
Drlg. 2,900 ft.
Nutex Oil Co.'s (Hankamer & Camp) No. 1 F. Rapp 511-ac. tract, Laguna Seca League.
Ready to resume drlg. at 125 ft.
E. A. Showers' No. 1 Brocks & Showers, 660 ft. from N and E lines of Lot 11, Blk. 18, Porcion 79.
Drlg. 1,000 ft.
Union Sulphur Co.'s No. 3 American Rio Grande Land & Irrig. Co., 400 ft. from S line, 600 ft. from E line of Lot 2,082, Blk. 88, 200 ft. W of No. 2.
Drlg. 5,575 ft.

JIM HOGG COUNTY

Miller & Pippin's No. 1 Yeager, 527 ft. S line, 150 ft. E line of Blk. 4, Sur. 20
Drlg. hard rock 1,675 ft.; did not set csg.
A. Edmiston's (G. H. Von Rossun) (John D. Norwood) No. 1 C. W. Hellen, 330 ft. N and W lines, Sur. 48.
T.D. 1,338 ft.; deepening.
J. M. Shugart's No. 1 R. Holbien, 100 ft. from E line, 330 ft. from S line of Blk. 55, Sur. 17 of Holbien Subd., of Las Animas grant.
Drlg. 2,300 ft.

JIM WELLS COUNTY

Joe Lundin's No. 1 T. C. Hewitt, SE cor. Sec. 51, McKinney & Williams Sur.
Rigging up.
Maer & Shira's No. 1 Schaeffer, 1,320 ft. E of NW cor. center of Blk. 15, of subdivision of ranch.
Derrick.

KARNES COUNTY

American Liberty Oil Co.'s No. 1 Belknap, 330 ft. from SW line of lease, 3,500 ft. from SE line of Gonzales tract, Blk. 1, Haynes Sur. (Burnell).
T.D. 3,436 ft.; I.P. 20,000,000 ft. of gas.
R. G. Tonkin's No. 1 Miss Olive Henke, 2,640 ft. from SW cor. N along W line, thence at R/A 330 ft.. Seguin grant
T.D. 2,830 ft.; P.B. trying to run csg.

KERR COUNTY

Meteor Oil Co.'s (Edminton & Walker) No. 1 Whitworth, 1,160 ft. from S line and 1,332 ft. from E line of Sec. 1,439, of the H.E.&W.T. Sur.
No report.
Jeff Love and Eastland Oil Co.'s No. 5-E Jeff Love, 1,500 ft. SE of No. 1 and 1,536 ft. from SE cor. and 300 ft. from N line of Sec. 1,591.
T.D. 2,560 ft.; est. 50 to 75 bbls. per day; to deepen to Ordovician.

LEE COUNTY

Humble O. & R. Co.'s No. 1 J. Simmons, 269-ac., 3,650 ft. from S line, 2,510 ft. from E line, Hunter Sur.
Abd. 4,738 ft.
Jas. E. Pederson's No. 1 Turner, 1,860 ft. from N line, 150 ft. from E line of tract, David Hudson Sur.
T.D. 6,560 ft.; P.B. to 6,150 ft.
Stowe & Scharlach's No. 1 Otto.
T.D. 1,700 ft.; standing; moving in new boiler to deepen to Edwards lime.

LIVE OAK COUNTY

Arthur, Brunson & Hall's No. 1 W. P. Howard, 150 ft. from W line, 2,400 ft. from N line of 200-ac. tract, in B. Ayers Sur.
Drlg. 1,278 ft.
Baugh & McMillan's No. 1 Walton & Campbell, 1,500 ft. NE line and SE line of D. R. Fant Sur.
Drlg. 2,400 ft.
Berry & Hayes' No. 1 C. L. Terrell, 1,600 ft. N line, 330 ft. E line of Henry Sur.
Abd. 2,258 ft.
California Co.'s No. 1 Blankenship, 466 ft. from SW line, 2,000 ft. from SE line, A. A. Dunn Sur.
Drlg. 3,400 ft.
Henderson Coquat's (Luling O. & G. Co.) No. 1 Rex, C of SW¼ of G.H.&H. Sur., Abst. 197, 3 miles S of Mileska.
S.D. 315 ft.
Lee McCoy et al's No. 1 R. Murry, 1,000 ft. from S line, 4,900 ft. from E line of Heffers on Sur.
S.D. 410 ft.; showing gas.
Smith & Story's No. 1 G. T. Frederick, 1,650 ft. from railroad, 330 ft. from southern N line of 420-ac., Curry Sur.
Drlg. 450 ft.

MAVERICK COUNTY

Escher & Andrews' No. 1 Mathews, NW cor. of B. C. Flowers Sur.
Standing 615 ft.

McMULLEN COUNTY

Howard & Claunch's No. 3 Claunch, 1,800 ft. from SE line, 1,200 ft. from SW line of M. Hely Sur.
Drlg. 490 ft.
Points et al's No. 1 Fahler, 2,000 ft. from S line, 2,500 ft. from W line of 1,000-ac. tract, Pittuck Sur.
Drlg. 587 ft.

MEDINA COUNTY

Scoggins & Sanders' No. 1 L. W. Burrell, 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. 395.
S.D. 1,580 ft.

MILAM COUNTY

H. V. Pedersen's No. 1 Sandow (formerly C. F. Drake et al's No. 1 Standard Coal Co.) 970 ft. SW line, 1,700 ft. SE line of G. L. Johnson Sur.
Rigged up to resume drlg. at 1,575 ft.
Frank W. Kellar, Inc.'s No. 1 A. L. Lucas, 1,980 ft. from N line, 400 ft. from E line of 178-ac. tract, J. Real Sur.
T.D. 1,500 ft.; no report.

NUECES COUNTY

Magnolia Pet. Co.'s No. 1 S. Page, 190.3 ft. from W line, 196 ft. from N line of 75-ac. tract in Kinney Sur. No. 586, Sec. 8.
No report.

REAL COUNTY

H. J. Heartwell et al's No. 2 L. J Maby, 694 ft. from W line and 2,153 ft. from S line of A.B.&M. Sur. No. 175.
T.D. 2,837 ft.; S.D.

SAN PATRICIO COUNTY

Allied Minerals' No. 1-A Ramsey, 466 ft. E, 220 ft. N of SW cor. of the North B. Giddings Sur. on a 1,000-ac. tract.
Sandy shale 2,642 ft.; moving in heavier rig; S.D.
Lonnie Glasscock's No. 1 M. F. Timmons, 330 ft. out of SE cor. of Blk. 27, San Patrico townsite.
No report.
Stanolind O. & G. Co.'s No. 1 J. J. McMillan (Whitehurst), 165 ft. from W line, 990 ft. from N line of Lot 12, Fulton Pasture Subd., Fitzsimmons League.
T.D. 4,018 ft.; reaming down 3,825 ft.

STARR COUNTY

Armstrong, Emanuel & Adams' No. 1 S.C. C.C., 330 ft. from S and E lines of Blk. 57, Porcion 88-89.
T.D. 2,735 ft.; tested sand 2,705-11 ft.; 20 thribbles mud and wtr.; very little oil.
C. R. Borah's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E lines of Sec. 6 (NE part of county).
Drlg. 2,705 ft.
John H. Clopton's No. 1 Roos, 13,155 ft. N of Highway 4, along E line of Por. 92, 3,300 ft. N, 80 deg. 45 min. W.
Fishing 4,350 ft.
John H. Clopton's No. 1 Dioncia Lopez de Tijerina, Blk. 4, Tract C-14, Porcion 80.
Drlg. 425 ft.
Crawford et al's No. 1 Hicks et al, 150 ft. SE and NE line of NW, Perdernal grant.
S.D. 1,615 ft.
Dainwood Oil Co.'s No. 1 Guerra, 5,280 ft. W line and N line of Share 26, Porcion 70-71-72.
Location.
F. D. Vernon's No. 1 G.L.&C.C.O., 330 ft. midway between N and S lines of Lot 8, Porcion 100.
Prepare to run D.S. test at 3,787-88 ft.
Morris & Bryan's No. 1 Hicks & Hicks, 660 ft. NE line, 2,000 ft. SE line of 500-ac. tract, Pedernal grant.
No report.
Conroe Drlg. Co.'s No. 1 Guerra, 330 ft. from NE and SE lines of Blk. 35, J. N. Crawford Subd., Por. 56, Jurisdiction of Mier.
Fishing 2,225 ft.
Dale Sneed's No. 1 T. and V. Guerra, 330 ft. W line of Por. 68, 330 ft. S line of 1,000-ac. block of N end of Por. 92, in Por. 68.
S.D. 300 ft.
Sunray Oil Co.'s No. 1 S. Sanchez, 1,500 ft. S of Great Plains' No. 1, in Sur. 344.
Abd. 4,015 ft.
R. H. Vice's No. 1 Carruth, 3,690 ft. from S line, 3,300 ft. from W line, Share B-1, Por. 91-92.
T.D. 4,016 ft.; cored saturated sand at 2,882-91 ft.; prepare to test.

TRAVIS COUNTY

D. Prewitt's No. 1 Ed Peterson, 150 ft. from SE and SW lines of tract, L. Kimbro Sur.
Rigging up; S.D.
C. A. Stubbs' No. 1 Julius Kerlin, 530 ft. SW line, 450 ft. NW line of 123-ac. tract in I. Lindsay Sur. No. 61.
Shut down.

WEBB COUNTY

Frank E. McMillan's No. 1 Bruni, 330 ft. from S and E lines of SW¼ of SE¼ of Sur. 77.
Drlg. 900 ft.
Payne et al's No. 1 Hoggterp, Blk. 5, Sur. 1,110, N of Oilton.
Drlg. 600 ft.
Arthur H. Wray's No. 1 Geo. Stuempke, Share 1, Brewster pasture, Galan grant.
Spudded; moving in heavier rig.

WILLACY COUNTY

Daniel et al's (South Texas Dev. Co.) No. 1 Armendias, 1,500 ft. W of Arroya Colorado River, 1,200 ft. N of S line of Tract 4.
Drlg. 3,100 ft. (corrected depth).

WILLIAMSON COUNTY

Fritz Fuchs' No. 1 Pflugger, 500 ft. S and E lines of Jacob Sapington Sur.
S.D. 900 ft.
Johnson & Ray's No. 1-B M. Oxford Smith, 600 ft. S of No. 1-A in S. Williams Sur.
S.D. 20 ft.
J. Morgan Russell's No. 1 Nelson, 1,150 ft. S line, 1,115 ft. E line of John L. Justice Sur. No. 2.
S.D. 894 ft.

ZAPATA COUNTY

F. H. Crow et al's No. 1 Daniel Ysaguirre, 330 ft. out of SW cor. Share 1, Porcion 14-15-16, D. Ysaguirre tract.
Location for 3,500-ft. test.
Danvers & Harrison's No. 1 D. A. McAskill, near N line of county.
Rigging up.
Dinn's (Danvers & Harrison) No. 1 M. J. Vela, 686 ft. NE line and 300 ft. NW line, or 3,140 ft. E line and 330 ft. N line of Por. 29, Blk. 7, Bela Subd.
T.D. 2,253 ft.; moving in heavier rig.
H. B. & W. Oil Co.'s No. 1 Cuellar, 150 ft. NE line, 450 ft. SE line of Blk. 3, Sur. 2, Papas Subd., Porcion 34.
Standing 1,345 ft.
H. & M. Oil Co.'s (Virginia Hardee) No. 1 Slator, 514 ft. from SW line, 150 ft. from SE line of Blk. 65, Borrego grant.
Standing 22 ft.
Joe Palmer's No. 1 J. M. G. Martinez, 150 ft. SE and SW line. Blk. 27, Sur. 434.
T.D. 1,104 ft.; no report.

ZAVALA COUNTY

Van Beavers et al's No. 1 Flowers, 1,600 ft. from E line, 600 ft. from N line of Sec. 19, I.&G.N.R.R. Sur., Blk. 1.
Derrick being rebuilt.

Southwest Texas Proven

Week Ending March 2

NORTH CEDAR CREEK—BASTROP COUNTY

Joe E. Mills' No. 1 Mrs. W. J. Cardwell, 900 ft. from SE line, 1,200 ft. from SW line of tract, J. A. Navarro Sur.
S.D.; chalk 1,820 ft.

CAESER—BEE COUNTY

Caesar Oil Co.'s No. 3 R. E. Miller.
W.O.C. 3,033 ft.
Neversuch Oil Co.'s (J. K. Hughes of Mexia) No. 1 Barroum, 330 ft. from N and W lines of SW 40-ac. of W½ of Barroum 1,068-ac. tract in Baker Sur.
Drlg. 1,800 ft.
Luling O. & G. Co.'s No. 6-B Ruhman, 660 ft. from NW line, 550 ft. from NE line of 162-ac. tract, Hodge Sur.
Coring for Pettus sand.
El Toro Co. of Houston's No. 1 Gardner, 870 ft. from S line, 920 ft. from E line of 105-ac. tract, F. Lewis Sur.
T.D. 3,028 ft.; I.P. 350 bbls. per day.

DIRKS—BEE COUNTY

Conservative Oil Co.'s No. 1 Harris, 330 ft. S of N line, 330 ft. W of E line of 30-ac. tract, J. L. Dugat Sur.
Rigging up.
Navarro Oil Co.'s No. 1 J. E. Roth, 280 ft. from N line, 330 ft. from W line of S½ of NW¼ of Sec. 7.
Derrick.

TULETA—BEE COUNTY

Blanco Oil Co. and Buchanan's No. 3-A Perez, 660 ft. from N line, 330 ft. from E line of SE¼ Sec. 9.
Set surface csg.
Edwin M. Jones' No. 12 Robinson, 330 ft. from S and W lines of 160-ac. tract.
Drlg. 3,100 ft.
Edwin M. Jones' No. 2 Robinson, 330 ft. from S line, 990 ft. from E line of SW¼ of Sec. 5.
Setting surface csg.
H. K. Hasselman's No. 1 Sparrow, C of Tract 4, NE¼ of Sec. 20.
T.D. 3,978 ft.; I.P. 25 bbls. per day.
Houston Oil Co.'s No. 3 Ed Strauss, 660 ft. W of No. 1, Lot 3, SW¼ of Sec. 9 in J. M. Uranga grant.
T.D. 3,970 ft.; I.P. 15 bbls. per hr.
Houston Oil Co.'s No. 6 Ed Strauss, C of Lot 11, SW¼ Sec. 9, W offset to No. 5.
Drlg. sand 3,992 ft.
Houston Oil Co.'s No. 10 Ed Strauss, C Lot 5 from SE¼ of Sec. 9, Hahl Subd., J. M. Uranga grant.
Waiting on rig.
Mills Bennett's No. 3 Silcock.
Coring for Pettus sand 3,000 ft.
Southwest Exploration Co.'s No. 1 Heyden & Bruckham, C of farm tract, 330 ft. from N and W lines of Sec. 20, Uranga grant.
Rigging up.
Tuleta Oil Co.'s No. 3 Skinner & Harris.
W.O.C. 3,932 ft.
Tuleta Oil Co.'s No. 4 Skinner & Harris, 330 ft. from S and E lines of W 80 acres of NW¼ of Sec. 10.
Set surface csg.

VON ORMY—BEXAR COUNTY

Jack Crouch's No. 5 Hoch, 330 ft. S of No. 4, Baerera Sur. No. 58.
S.D. 250 ft.
Richcul Oil Co.'s No. 1 Kohler, 1,000 ft. from N line, 155 ft. from E line of J. Vogt 96.5-ac. tract in J. M. Baerera Sur. No. 58.
Standing 1,324 ft.
Richcul Oil Co.'s No. 1 Marshack, 155 ft. from W line, 1,500 ft. from S line of 100-ac. tract, Samuel McCulloch Sur.
No report.
Richcul Oil Co.'s No. 1 W. A. F. Vogt, 160 ft. from E line, 972 ft. from S line of 300-ac. in S. McCullough Sur. No. 54.
T.D. 1,085 ft.; no report.
Richcul Oil Co.'s No. 1 Wellbacker, 155 ft. from E line, about 2,250 ft. S of highway in Jett Sur.
T.D. 665 ft.; no report.

Umburn & Trawalter's No. 4 Wm. Biel. No report.

DRISCOLL—DUVAL COUNTY

Continental Oil Co.'s No. 4-A Clara Driscoll Sevier, 160 ft. from W line, 258 ft. from N line of Sur. 448.
T.D. 3,430 ft.; I.P. 320 bbls. per day; ½-in. choke.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Mills Bennett's No. 1 W. R. Peters, 330 ft. from S and E lines of NW¼ of Sur. 178.
Drlg. 2,060 ft.

Bridwell Oil Co.'s No. 2 Schoolfield, 990 ft. from N line, 330 ft. from W line of Blk. 12, Sur. 78.
Coring 2,650 ft.

Central Producers, Inc.'s No. 4 Wendt, 990 ft from S and W lines of Sur. 43.
T.D. 2,275 ft.; I.P. 10,000,000 ft. of gas and 50 bbls. oil per day.

H. H. Coffield's No. 5 Wendt, 330 ft. from S line, 810 ft. from E line of NE¼ of Sur. 43.
Derrick.

Edgington & Murray's No. 2 C. W. Hahl, 330 ft. N and E lines, Blk. 16, Sur. 250.
W.O.C. 2,363 ft

Govt. Wells Oil Co.'s No. 13 State, 660 ft. from N line, 1,323 ft. from W line of N½ of NW¼ of Sur. 60.
T.D. 2,243 ft.; I.P. 65 bbls. per hr.; flowing.

Frank Gravis et al's No. 1 C. W. Hahl, 330 ft. from S and E lines of NE¼ of Sur. 365.
W.O.C. 20 ft.; drlg. wtr. well.

Magnolia Pet. Co.'s No. 2 Duval County Ranch, 330 ft. from S line, 990 ft. from E line of Sur. No. 67.
T.D. 2,220 ft.; I.P. 50 bbls. per day on pump.

Magnolia Pet. Co.'s No. 13 Hahl-Southland, 330 ft. from S and E lines of NW¼ of Sur. 61.
W.O.C. 41 ft.

Magnolia Pet. Co.'s No. 4 Humble-D.C.R.C., 330 ft. from S line, 1,650 ft. from E line of NE¼ of Sur. 363.
W.O.C. 39 ft.

Magnolia Pet. Co.'s No. 4-C Hahl, 330 ft. from S line, 990 ft. from E line of Sur. 60.
T.D. 2,344 ft.; I.P. 50 bbls. per day on pump.

Magnolia Pet. Co.'s No. 1 C. W. Hahl, 330 ft. from N and E lines of Sur. 67.
Drlg. 2,300 ft.

Reynosa Oil Co.'s No. 2 Lundell, 330 ft. from N and W lines of NE¼ NE¼ of Sur. 60.
Testing 2,330 ft.

Reynosa Oil Co.'s No. 3 Lundell, 330 ft. from S and E lines of NE¼ NE¼ of Sur. 60.
Spudded; (correction).

Salt Dome Oil Co.'s No. 5-B Moody, 330 ft. from N and E lines of NE¼ NW¼ of Sur. 60.
Rigging up.

Southwest Drlg. Co.'s No. 1 Hahl, 330 ft. from N and E lines of N 50 acres of E 100-ac. tract in SE¼ of Sur. 41.
Derrick.

Texas Co.'s No. 4 Hahl, 330 ft. from E and E lines of Blk. 17, Sur. 250.
Testing 2,363 ft.

Texas Co.'s No. 1 M. Vela, 330 ft. from N and E lines of S½ of Sur. 42.
W.O.C. 2,776 ft.

Texas Co.'s No. 1 Wendt, 330 ft. from S and E lines of 75-ac. tract, Sur. 43.
Drlg. 2,100 ft.

Windsor Oil Co.'s No. 4 Cummings, 330 ft. from N line, 150 ft. from W line of 20-ac. tract, Sur. 44.
W.O.C. 2,280 ft.

LOMA NOVA—DUVAL COUNTY

Humble O. & R. Co.'s No. 2 Ruiz, 1,722 ft. from W line, 330 ft. from SE line of Sur. 553.
Drlg. 2,570 ft.

DARST CREEK—GUADALUPE COUNTY

Grayburg Oil Co.'s No. 13 McKean, 500 ft. NE of No. 4, Cottle Sur.
T.D. 1,758 ft.; moving back rotary.

LUCAS—LIVE OAK COUNTY

Houston Oil Co.'s No. 31 Cartwright, 1,010 ft. N of No. 30, J. Sandman Sur.
Preparing to drill plugs at 1,015 ft.

Lion Oil Ref. Co.'s No. 3 McNeil, 660 ft. N. 660 ft. E of No. 1.
T.D. 4,450 ft.; cleaning self.

MARBACH—LIVE OAK COUNTY

Durbin et al's No. 2 Marbach, 1,800 ft. from E line, 450 ft. from S line of 423-ac. tract in S. Hays Sur.
No report.

SAM FORDYCE—HIDALGO COUNTY

Alamo Drlg. Co.'s No. 2 Guerra, 233 ft. from N line, 330 ft. from E line of NW 12.5 acres of S 75 acres, of Tract 254, Por. 40.
T.D. 2,125 ft.; standing.

Cortez Oil Co.'s (Weekly) No. 3 Smith, 340 ft. from N line, 150 ft. from W line of Tract 278, in Por. 40.
T.D. 2,769 ft.; I.P. 15 bbls. per hr.; ¼-in. choke; 280 lbs. tubing pressure.

Gem Oil Co.'s No. 1 Seabury, 230 ft. from S and E lines of W 24 acres, Tract 256, Porcion 38.
T.D. 2,775 ft.; est. 3 to 5 bbls. per hr.

Heep Oil Corp.'s No. 1 Lawrence, 226 ft. from N line, 241 ft. from E line of SE 5 acres of Tract 274, Porcion 39.
Derrick.

Henshaw Oil Corp.'s No. 1 Seabury et al, C of SW 11.5 acres of NE 45.25 acres, Tract 256, Por. 38.
Location.

Hill & Hill's No. 1 C. E. Smith, W end of S 10 acres, Share B-3, Por. 41.
Drlg. 1,450 ft.

Kingwood Oil Co.'s No. 1-B Lawrence, 114 ft. from N line, 241 ft. from E line of SW 9.52 ac., Tract 274, Por. 39.
W.O.C. 205 ft.

Moss & Bass et al's No. 1 F. B. Guerra, 232 ft. N line, 232 ft. W line of W 25 acres of S 50 acres of E 290 acres, Tract 254, Por. 40.
Derrick.

Navarro Oil Co.'s No. 3 Seabury, N 28-ac. Tract 256, Porcion 38.
T.D. 2,772 ft.; gasser spraying oil; test killed.

Reserve Oil Co.'s No. 2 Seabury, 330 ft. S and E lines of 28-ac. tract, Tract 256, Porcion 38.
Drilled plugs and run tubing, 2,765-72 ft.

Roger O. & G. Co.'s No. 3 Guerra, 230 ft. from N and W lines of SE 25 acres of Tract 254, Por. 40.
Drlg. 900 ft.

Skelly Oil Co.'s No. 1 Seabury, 330 ft. from S line, 230 ft. from E line of W 24 acres, Tract 256, Por. 38.
Rigging up.

Waite's (Scheafer & Mundy), Ind. Dist., 25 ft. from N line, 210 ft. from E line of Tract 260, Porcion 38.
Rigging up.

Weekly Oil Co.'s No. 4 Smith, 1,000 ft. from N line, 165 ft. from E line of NE 34.43 acres, Tract 278, Por. 40.
W.O.C. 206 ft.

Windsor Oil Co.'s No. 2 Doss, 150 ft. from N and W lines of 55-ac. tract, Por. 40.
T.D. 2,758 ft.; I.P. 8 bbls. per hr.; 1/16-in. choke.

HENNE-WINCH-FARISS—JIM HOGG COUNTY

Magnolia Pet. Co.'s No. 36-A Martinez, 330 ft. from S and E lines of Sur. 275.
Drlg. 2,305 ft.

SANDIA—JIM WELLS COUNTY

O. W. Killam's No. 4 Wade, ¼ mile N of No. 3 Wade.
T.D. 4,028 ft.; flowing 100 bbls. oil, no wtr.; estimated.

Magnolia Pet. Co.'s No. 6 Seeligson, 660 ft. W, 330 ft. S of No. 3, Canales Sur. No. 20.
Drlg. 2,300 ft.

Sinclair Prairie's No. 1-A Seeligson, 630 ft. from N line, 330 ft. from E line of B.S. & F. Sur.
Coring 3,910 ft.

BURNEL—KARNES COUNTY

American Liberty Oil Co.'s No. 1 Mrs. Herber, 50 ft. from SE and NE line 100-ac. tract, Blk. 4, J. Johnson Sur.
T.D. 3,345 ft.; comp. for large gas well.

Marrs & Norton's No. 3 Choate, 1,000 ft. SE along line of Clark & Johnson Surveys from N cor. of Tract 7.
T.D. 3,330 ft.; comp. as large gas well with small amount of distillate.

KINGSVILLE—KLEBERG COUNTY

Fidelity Exploration Synd.'s No. 1 Vivian Kivlin, Sec. 4, Blk. 39, K.T.&I. Sur. on Vivian Kivlin lease.
Derrick up.

JACOB POOL—McMULLEN COUNTY

Kennon & Stephenson's No. 2 Lark, 150 ft. from N and W lines of Blk. 15, Scrugham Sur.
Preparing to complete 1,038 ft.

Longhorn, trustee's No. 4 Lark, Blk. 4 of the Scrugham Sur.
T.D. 1,035 ft.; trying to comp.

SINTON—SAN PATRICIO COUNTY

Humble O. & R. Co.'s No. 1 Welder, 2,400 ft. from N and E lines of 200-ac. lease.
Drlg. shale 5,510 ft.

ANGELITA—SAN PATRICIO COUNTY

Plymouth Oil Co.'s No. 2-B Welder, start at SW cor. of "B" lease, thence NW along the W line 2,100 ft., thence 350 ft. NE at R/A.
T.D. 6,859 ft.; drlg. sidetracked hole 5,-330 ft.

LOS OLMOS—STARR COUNTY

H. L. Curry's No. 1 Bass, 825 ft. E line, 2,522 ft. N line of Sur. 8, Por. 75-76-77.
S.D. 718 ft.

J. P. Kennedy's No. 1 Kelsey-Bass, 200 ft. SE of No. 7 Kelsey-Bass in Blk. 7 of Porcions 75, 76 and 77.
Standing 710 ft.

BARBACOAS—STARR COUNTY

Merren Bond et al's No. 4 S.C.C.C., 330 ft. from N and E lines of S 20 acres of Blk. 24, of the Jeffries Lambeth Subd., Por. 39.
Coring gas sand 2,750 ft.

RIO GRANDE CITY—STARR COUNTY

Goodwin et al's No. 1 Pena, 150 ft. from SE and SW lines of Share 30, Por. 31.
Rigging up; drlg. wtr. well.

SAXET—NUECES COUNTY

Southern Mineral Corp.'s No. 4 Ocher, 1290 ft. S line and 417 ft. E line of Ocher 202.52-ac. tract in Sec. 5.
Derrick.

WEST COLE POOL—WEBB COUNTY

American Liberty Oil Co.'s No. 8-A Bruni, 883 ft. NW line, 777 ft. SW line of Sur. 6, M. Arispe grant.
Location.

American Liberty Oil Co.'s No. 1-C Bruni, 330 ft. from NW and SW lines of 95-ac. tract, Sur. 7.
T.D. 3,404 ft.; I.P. 12 bbls. per hr.

J. M. Anderson's (Stieren et al) No. 1 Philp, 1,461 ft. from E line, 3,519 ft. from S line of Sur. 320.
Rigging up.

CarolinaTexas O. & G. Trust, Inc.'s No. 11 S. Benavides, 150 ft. from S line, 600 ft. from W line, Blk. 12, Sur. 683.
C.O. 3,357 ft.

Cole Pet. Co.'s No. 90 Bruni, 832 ft. from NE line, 330 ft. from SE line of Sur. 1.
T.D. 3,409 ft.; P.B. to 2,300 ft.; W.O.C.

Foster Barnsley's No. 6 Webster, 150 ft. E line, 510 ft. S line of NE SW Sur. No. [illegible].
Coring deeper 3,053 ft.

Highland Oil Co.'s No. 5 Bruni, 1,300 ft. from NW line, 330 ft. from SW line of Pure's 200-ac. tract in Sur. 2, Arispe grant.
Drlg. 750 ft.

O. W. Killam's No. 1-A Bruni, 275 ft. from N line, 200 ft. from W line of Blk. 55, Brown Subd., Albercas grant.
Drlg. 2,200 ft.

O. W. Killam's No. 32 Bruni, 260 ft. from SE line, 418 ft. from NE line of Blk. 28, Sur. 8.
Drlg. 800 ft.

O. W. Killam's No. 34 Bruni, 236 ft. from SW line, 330 ft. from SE line, Sur. 6.
Derrick.

Magnolia Pet. Co.'s No. 5 C. Benavides, 150 ft. from S and E lines of NE¼ of SE¼ of Sur. 661.
Abd. 3,347 ft.

Magnolia Pet. Co.'s No. 6 Benavides, 150 ft. from S and E lines of SW¼ of SE¼ of Sur. 661.
Rigging up.

Magnolia Pet. Co.'s No. 9 Brennan Benavides, 150 ft. from SE lines of common cor., Blks. 418 and 419.
Drlg. 2,000 ft.

Highland Oil Co.'s (Pure) No. 2 Bruni, 330 ft. NW and NE lines of tract in Sur. 7.
Location.

Peerless-Seeligson et al's No. 1 Bruni, 330 ft. from NW and W lines, Arispe grant, Sur. No. 6.
T.D. 3,427 ft.; I.P. 60 bbls. per hr. on ½-in. choke.

Sun Oil Co.'s No. 7 Bruni, 418 ft. from NE line, 260 ft. from SE line of Blk. 10, Arispe grant.
T.D. 3,426 ft.; I.P. 28 bbls. per day; ¼-in. choke.

Sun Oil Co.'s No. 3 Bruni, 260 ft. SE line, 418 ft. NE line of Sur. 5.
Swabbing 3,426 ft.

Sun Oil Co.'s No. 10 Bruni, 418 ft. NE line, 260 ft. SE line of Blk. 19, Sec. 5.
No report.

BYERSVILLE—WILLIAMSON COUNTY

R. R. Ogden's No. 1 Matteck, 150 ft. N and W lines of 108.5-ac. tract in White Sur.
Location.

Tayor Ref. Co.'s No. 6-A Heep, H. White Sur.
Drlg.

GOPHER—ZAPATA COUNTY

O. W. Killam's No. 2 Bruni, 5,700 ft. from NW line, 2,615 ft. from NE line of Borrego grant.
T.D. 1,200 ft.; no report.

JENNINGS—ZAPATA COUNTY

Texas Co.'s No. 63 Whitehead, 4,004 ft. from SE line, 19,919 ft. from SW line, Cerrito Blanco grant.
T.D. 1,694 ft.; P.B. to 1,238 ft.; W.O.C.

LOPENO—ZAPATA COUNTY

Norden & Morris' No. 1 Vela, 1,320 ft. from NE line, 660 ft. from SE line, Blk. 6, Por. 20.
Drlg. 835 ft.

Venture Pet. Co.'s No. 1 I. Ramiriz, 990 ft. from NE and NW lines of Blk. 1, Por. 18.
Drlg. 1,000 ft.

MARTINEZ—ZAPATA COUNTY

MIRANDO VALLEY—ZAPATA COUNTY

Cliff Durks' No. 1 R. Hinnant, 200 ft. W line, 750 ft. S line of Blk. 16, Sur. 116.
Standing 1,582 ft.

FILTROL COMPANY OF CALIFORNIA
SUPER FILTROL
LOS ANGELES

SUPER FILTROL is an activated adsorbent of uniform quality and maximum decolorizing efficiency and available at minimum cost.

FILTROL COMPANY OF CALIFORNIA
1755 Downey Road Los Angeles, California
FILTROL EFFICIENCY

HEILAND RESEARCH CORPORATION
LICENSED GEOPHYSICAL ENGINEERS
CLUB BLDG. DENVER, COLO.

Sligo Gas Field, Bossier Parish, Extended One and a Half Miles to East by Good Well

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 4.—Aside from the Sligo gas field in Bossier Parish being extended 1½ miles east by a good well from the 2,800-foot level there were no developments of interest in any of the districts comprising this division during the past week. One well in the Spring Ridge area, south of the town of Pleasant Hill, was a duster, just about writing the finish to further operations in that restricted area for production from the upper horizon of the lower Cretaceous. South Arkansas, including the Miller County and Rainbow Fields, drew a blank during the past seven days, reporting three completions, all of which were dry.

NORTH LOUISIANA

The Arkansas-Louisiana Gas Co.'s No. 1 R. O. Roy, Section 18-17-11, east of the Sligo Field, Bossier Parish, gauged 41,000,000 feet of gas with 1,250 pounds rock pressure from 2,799 feet. The well is about 1½ miles east of any gas production from this level, the first well being Woodley Petroleum Co.'s No. 1 Harris in Section 14-17-12. The present completion is the third from this particular horizon in the Sligo area, and is logged as the Washita or Fredericksburg from the upper part of the lower Cretaceous between the Woodbine horizon and the upper Trinity series. The Sligo area produces gas from the Nacatoch around the 900-foot level, the Blossom and Woodbine and the upper Trinity or Oolitic lime around the 4,200-foot level. Oil sand has also been contacted and tested in various sands in this area, but the primary purpose of the operators in the field has been for gas wells. The second gasser in the North Louisiana district was reported from the Union Parish area of the old Monroe Field. Interstate Natural Gas Co.'s No. 6 Spencer, Section 2-20-3e, gauged an initial open flow of 1,500,000 feet of dry gas with 835 pounds rock pressure from 2,154 feet. The most disappointing completion in this district was Frank R. Foster, Inc.'s No. 1 N. Phillips in Section 16-9-11, in the Spring Ridge area about 4 miles south of the town of Pleasant Hill in Sabine Parish. After testing salt water on drill stem test from 3,357 to 3,428 feet last week the well was deepened to 3,540 feet and abandoned as dry at that depth. This area was first brought into the limelight more than two years ago by the completion of a small flowing oil well and later by a 13,000,000-foot gas well from the upper horizon of the lower Cretaceous, logged as the Washita or Fredericksburg. The present test is the third failure in the immediate vicinity, one of which had a good flow of oil on drill stem test, but failed to make a commercial producer after casing was set and the well bailed.

Several wildcats in the Central and North Louisiana areas are making good progress, but developed barren results on test during the past week. In Avoyelles Parish, Southern Star Petroleum Co.'s No. 1 O. G. Boyette, Section 28-3-5e, was dry on drill stem test from 3,003-15 feet and is drilling ahead in hard shale at 3,300 feet. A Rapides Parish wildcat, C. D. Loe, trustee's No. 1 Baird estate, Section 40-4n-1w, is temporarily shut down repairing derrick at 3,514 feet. In the old Naborton Field, De Sota Parish, Bailey Gaunce's No. 2 Jenkins, Section 35-13-12, has set 6-inch casing at 3,628 feet with the hole bottomed at 3,632 feet. The well is a 900-foot offset to a test drilled more than a year ago to a deeper sand in that area, and which tested an estimated 12,000,000 feet of gas from the 3,600-foot level. The first test sanded up and was finally junked and abandoned. Reports from the well now preparing to test indicates a gas producer without the presence of salt water which hindered completion of the first well. Drilling activities continue at a brisk rate in the old proven fields in Caddo Parish, particularly in a recent extension of the Pine Island Field. Press & Lambert's No. 1 Hughes, Section 15-20-15, is bailing to test at 2,201 feet, and Tooke & Reynolds' No. 2 Levy, Section 16-20-15, is testing at 2,212 feet after setting 6-inch casing at 2,170 feet. V. & F. Oil Co.'s No. 2 Etchison, Section 16-20-15, has recemented casing, plugging back from 2,191 feet to 2,100 feet. This well recently tested an estimated flow of 5,000,000 feet of gas from the total depth of 2,191 feet, but had a small spray of salt water.

In the northwestern part of Bienville Parish, C. V. Duncan and others are drilling a series of core tests to the base of the Cane River horizon on a 10,000-acre block to spot the high of that vicinity for a second test. The first well, No. 1 Hutton, Section 4-18-7, was recently abandoned at 3,350 feet, showing oil at several different depths. About 6 miles southwest of Converse production in Sabine Parish, Laurel Petroleum Co. is reported to be moving in derrick timbers for a test on a 5,000-acre block centering around Section 14-8-14.

ARKANSAS

This district reported a dull and uneventful week, aside from three dry holes in two proven areas. In the Miller County Field, Magnolia Petroleum Co.'s No. 7 Olivet, Section 3-16-26, swabbed with barren results for several days and the well was abandoned as dry at 2,947 feet. In the same area, John Wrather's No. 2 E. H. Beck, Section 34-15-26, failed to encounter any sand and was dry and abandoned at 2,981 feet. The new producing horizon in the lower Red beds in the Rainbow Field, northeast of El Dorado, Union County, Arkansas, seems to have had its play. The only completion from this area for the past seven days was a dry hole. C. E. Murdock's No. 9 J. M. Gregory, Section 10-17-14, cored 2 feet of sand from 3,448-50 feet, but on test failed to make a commercial well and was abandoned in ash and red shale at 3,453 feet.

The recently discovered hot spot in Ouachita Parish, 5 miles west of the town of Camden, developed nothing during the past week that proves that area to be an oil field. Kraft Oil Corp.'s No. 1 Rath & Cartier, Section 32-13-17, 3 miles southeast of the discovery well, tested salt water from 1,420-28 feet, and is now shut down waiting orders at the latter depth. J. R. Reynolds' No. 1 M. Bragg, Section 25-13-18, a west offset to the lone producing well in that area, set 6-inch casing at 1,372 feet and is arranging to test a show of oil from sand from 1,386-90 feet. One new location was reported for the Camden area, T. J. Gaughan's No. 1 J. Humphrey, Section 3-13-17, an offset to his discovery well.

Kamon & Neely's No. 1 Cockran, Section 26-19-25, a wildcat in Lafayette County, reports the top of Nacatoch at 1,830 feet and is drilling at 2,210 feet. Another test in this county, Riggs Brothers' No. 1 J. W. Dubose, Section 35-15-24, is temporarily shut down at 1,000 feet. A wildcat northwest of the Miller County Field, King Oil Corp.'s No. 1 E. G. Anderson, Section 16-14-27, is coring at 1,605 feet after logging the base of chalk rock at 1,211 feet. H. L. Hunt, Inc.'s No. 15 E. F. Gregory, Section 10-17-14, a deep test in the Rainbow Field, is coring hard white sand at 5,185 feet. Gulf Refining Co.'s No. 49 Louis Werner, Section 5-16-16, a deep test in the Smackover Field, Union County, has set 16-inch surface casing at 98 feet and is drilling at 934 feet. Gordy Drilling Co.'s No. 1 Craig, Section 35-17-15, east of the town of El Dorado, cored sandy shale with a show of oil from 2,185 to 2,200 feet, and arrangements are being made to set casing to test.

MISSISSIPPI

This district has been practically inactive during the past two weeks, only three wells reporting active drilling. In Monroe County, P. J. McAlpine's No. 1 Crook, Section 4-13s-18w, has resumed operations after a shutdown and is drilling at 1,807 feet. H. W. Elliott and others' No. 2 R. L. Parker, Section 14-14n-1e, Warren County, has set 6⅞-inch at 820 feet and arranging to drill plug. Jack Vale and others' No. 1 Moody, Section 3-13n-14e, Winston County, is drilling in black shale at 954 feet.

ALABAMA

Ray L. Easterbrook's No. 1 T. R. Miller Land Co., Section 1-4n-12e, was abandoned as a dry hole at a total depth of 4,831 feet. The only active rig in this district at this time is Geometer Production Corp.'s No. 1 A. B. Culbreath, Section 8-2n-14e, drilling in chalk rock at 3,300 feet.

Crude Oil Production

Estimated daily crude oil production for the week ending March 2, follows:

NORTH LOUISIANA

	Bbls.
Bellevue	550
Caddo, light	4,700
Caddo, heavy	1,865
Converse	1,110
Cotton Valley	460
DeSoto and Red River	1,445
Elm Grove	400
Haynesville	3,565
Holly	165
Homer	2,690
Pleasant Hill	195
Sarepta-Carterville	540
Urania	3,215
Zwolle	2,080
Total	22,980

SOUTH ARKANSAS

Champagnolle	2,320
El Dorado	2,205
Lisbon	320
Miller County	1,580
Nevada	835
Smackover, light	2,170
Smackover, heavy	17,985
Stephens	505
Urbana	2,150
Total	30,070

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

NORTH LOUISIANA
AVOYELLES PARISH

Southern Star Pet. Co.'s No. 1 O. G. Boyette, Sec. 28-3-5e.
Drlg. 3,300 ft.

BIENVILLE PARISH

Saline Drlg. Co.'s No. 1 Pardee, Sec. 27-14-6.
Drlg. 2,790 ft.

BOSSIER PARISH

Ark.-La. Gas Co.'s No. 1 R. O. Roy, Sec. 18-17-11.
Comp. 41,000,000 ft. gas 2,799 ft.

Clyde French's No. 1 Hall, Sec. 28-20-13, 1,155 ft. N, 495 ft. E of center.
Drlg. 804 ft.

Howard & Baird's No. 1 Gold, 150 ft. S and E, NW cor. Sec. 36-20-13.
S.D. 1,126 ft.

W. A. Kirkland's No. 1 Jarrett & McKeller, 330 ft. N and W, S cor. NW NW Sec. 3-21-13.
Drlg. 200 ft.

Leonard Co.'s No. 1 Pearson, 250 ft. S and E, of C Sec. 22-21-14.
S.D. for fuel 2,408 ft.

Scott & Howard's No. 1 Sherrill, Sec. 13-19-12.
Partly rigged up and S.D.

R. L. Skidmore et al's No. 1 Davis, Sec. 12-18-13.
S.D. 1,150 ft.

CADDO PARISH

Ark.-La. Gas Co.'s No. 2 Rodessa O. & Devel Co., Sec. 23-23-16.
Drlg. 3,856 ft.

E. H. Bailey et al's No. 1 Hartzo, NW cor. NE NW Sec. 28-22-16.
Set 12⅛-in. 40 ft.

W. T. Bell et al's No. 1 Bostick, 1,820 ft. E, 660 ft. N, SW cor. Sec 12-22-16.
Fishing for bailer 2,754 ft.

Cal.-La. Devel. Co.'s No. 1 Glassell, NW NE Sec. 11-19-15.
Set 10-in. 40 ft.

Gulf Ref. Co.'s No. 7 Chew, 945 ft. N, 200 ft. E of C Sec. 33-21-16.
W.O.S.R. 1,833 ft.

Gulf Ref. Co.'s No. 8 Chew, 100 ft. N, 400 ft. E, C Sec. 33-21-16.
Derrick.

Hillman et al's No. 1 J. S. Noel Est., NE NE Sec. 12-20-16.
Rigged up and S.D.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 275 ft. N, SW cor. SE Sec. 4-14-16.
S.D. 2,128 ft.

Meyers et al's No. 1 Davidson, 790 ft. W, 200 ft. S, NE cor. SE Sec. 16-20-15.
Drlg. 2,189 ft.

Press & Lambert's No. 1 Hughes, Sec. 15-20-15.
Bailing to test 2,201 ft.

Recovery Oil Co.'s No. 1 W. L. Sibley, Sec. 15-19-14.
Drlg. 2,002 ft.

Simplex Oil Co.'s No. 1 W. E. Glassell, 660 ft. N and W, SE cor. Sec. 36-20-13.
Set 10-in. 60 ft.; drlg. 1,400 ft.

G. R. Stevens' No. 2 Hart, Sec. 22-21-16.
Derrick.

Texas Co.'s No. 3 School fee, Sec. 16-20-15.
Set 10-in. 100 ft.; set 6-in. 2,183 ft.
W.O.S.R. 2,160 ft.

Texas Trading Co.'s No. 1 A. T. Curry, 660 ft. N and E, SW cor. NW Sec. 28-19-16.
Set 2¼-in. 943 ft.; testing 952 ft.

Tooke & Reynolds' No. 1 Levy, 330 ft. N and W SE cor. NE Sec. 16-20-15.
W.O.S.R. 2,210 ft.

Tooke & Reynolds' No. 2 Levy, 300 ft. S and E NW cor. SE NE Sec. 16-20-15.
Set 6-in. 2,170 ft.; testing 2,212 ft.

V. & F. Oil Co.'s No. 2 Ethison, Sec. 16-20-15.
Cmtd. and P.B. to shut off S.W., 2,191 ft.

CATAHOULA PARISH

T. R. Hincy's No. 1 La. Central Lbr. Co., Sec. 32-9-6e.
S.D. for D.S. 1,541 ft.

Phillips et al's No. 1 Central Lbr. Co., Sec. 2-9-6e.
Arranging P.B. from 3,016 ft.

CLAIBORNE PARISH

J. C. King's No. 1 Odes Webb, 330 ft. S and E, NW cor. NW NE Sec. 21-21-8.
S.D. 1,100 ft.

E. T. Oakes' No. 1 H. W. Patton Est., 660 ft. S and W, NE cor. Sec. 1-20-5w.
Rigging up.

DESOTO PARISH

Century O. & Drlg. Co.'s No. 1 Morton, 300 ft. N and E SW cor SE NE Sec. 27-11-14.
Set 6-in. 2,810 ft.; T.D. 2,825 ft.

G. O. Collins' No. 1 J. H. Riggs, 450 ft. S and W, NE cor. SW Sec. 21-14-13.
Derrick pattern.

Dempsey & Manziel's No. 1 Thigpen, 375 ft. S, 330 ft. W, NE cor. SW NE Sec. 33-13-13.
Pumping S.W. and show of oil 1,745 ft.

DeSoto Pet. Co.'s No. 1 B. Y. Wemple, C S½ SE NE SW Sec. 14-12-11.
S.D. 2,073 ft.

E. L. Foster's No. 1 Youngblood, Sec. 9-11-14.
S.D. 1,830 ft.

Bailey Gaunce's No. 2 B. F. Jenkins, Sec. 35-13-12; O.W.D.D.
Set 6-in 3,628 ft.; T.D. 3,632 ft.

Hester et al's No. 1-A T. R. Alston, 360 ft. S, 330 ft. W, C Sec. 11-11-16.
S.D. 42 ft.

Leslie Prod. Co.'s No. 1 Ramsey, 150 ft. N and W of C Sec. 36-11-11.
Set 10-in. 45 ft.

C. T. Ruffin's No. 1 J. M. Nabors, 300 ft. S and E, NW cor. SW Sec. 32-13-11.
Drlg. 2,550 ft.

(Continued on Page 92)

Fourteen Completions in Lower Eastern Fields; Most of Producers in Southeast Ohio Area

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Mar. 4.—There were 14 completions in the lower Eastern fields during the week. Nine were gas wells and five were producers with an initial production of 57 bbls. Added to these were five dry holes. Most of the new production was in Southeast Ohio.

SOUTHEAST OHIO

In Coshocton County, Southeast Ohio, Preston Oil Co. completed a fair second test on the Charles D. and Martha F. Mossholder farm in New Castle Township in the Clinton sand. After shot it produced 45 bbls. the first day.

In Knox County Upham Gas Co. drilled a test on the Jean Horton farm, Lot 22, Butler Township, through the Clinton sand, and it was dry. The location is 860 feet from the south line and 650 feet from the west line.

In Medina County C. B. Wood completed No. 9 on the A. D. Falconer farm, the NE part of Lot 36, Harrisville Township, in the Berea grit at a depth of 352 feet, good for 1 bbl. a day after shot.

In Monroe County E. R. Bates and others completed a test on the William B. Dougherty farm in Section 7, Wayne Township, in the Keener sand at a depth of 1,247 feet. It produced 5 bbls. the first day after shot.

In Perry County C. L. Bullock and others completed No. 8 on the Elizabeth Donnelly farm, Section 33, Pleasant Township, in the Berea sand at a depth of 1,112 feet, showing for 5 bbls. a day after shot. In Reading Township Planet Oil Co. and others drilled No. 4 on the David Petty farm, in the NE of Section 20, through the Clinton sand to 2,980 feet. It was dry. In the SE of Section 9, same township, Ohio Fuel Gas Co. drilled No. 1 on the Blanch Shough farm down from the Berea sand through the Clinton sand, which was dry. This test had been completed in the Berea sand last July but was exhausted.

SOUTHWEST PENNSYLVANIA

There were no new producers nor gas wells added in Southwest Pennsylvania. In East Findley Township, Washington County, the Natural Gas Co. of West Virginia drilled deeper No. 1 on the G. W. Tilton farm, which had been completed in the Thirty Foot sand as a gas well of 89,000 feet a day, and which had been exhausted, down to a total depth of 3,034 feet. The top of the Fifth sand was at 3,003 feet and extended to 3,022 feet with a showing, only, of oil. It is dry and is being plugged.

In this township the same company has reached 300 feet on the P. I. Ealy farm. Near the town of East Findley this company is hauling in a rig onto the T. C. Noble farm.

In Amwell Township, Washington County, Carnegie Natural Gas Co. is down 2,891 feet on the R. M. Carrons farm. The top of the Thirty Foot sand was at 2,887 feet with a light showing of gas at 2,888 feet. The Pittsburgh Coal was at 905 feet. In this company's second test on the M. Manon farm the top of the Fifty Foot sand was at 2,635 feet, and the tools are now down to 2,653 feet. In this township, about 1½ miles west of Lone Pine, this company has started drilling deeper No. 1 on the F. I. Moninger farm. The Pittsburgh Coal was at 593 feet, and drilling started at 2,583 feet, with about 75 feet of progress made. Union Gasoline & Oil Corp. is down 1,030 feet on the L. Johns farm. The Pittsburgh Coal was placed at 898 feet.

In West Bethlehem Township, Washington County, Furman Nuss & Co. are spudding on the Margaret Keys farm. In Morris Township, same county, James McCracken & Co. is getting ready to drill deeper No. 1 on the H. B. Saunders farm, since the gas in the Gantz sand at 2,850 feet had been exhausted. The volume, initial, was about 250,000 feet a day.

In Cecil Township, Washington County, A. G. Phillips & Co. are rigging up on the M. Winters farm. In this township Paul Clay & Son are rigging up on the James Johnson farm.

In Greene County, Carnegie Natural Gas Co. is down 2,810 feet in deepening No. 2 on the George W. Gordon farm in Whiteley Township. In Gilmore Township, Johnson & Eddy have shut down at 1,525 feet in the second test on the W. L. B. Roberts farm and are testing. In Richhill Township, Lewis and others are reaming the hole in the test on the Samuel C. Chess farm. In Morris Township Union Gasoline & Oil Corp. is drilling deeper No. 1 on the Samuel Price farm. The top of the Thirty Foot sand is at 2,723 feet and the hole has reached 2,730 feet.

WEST VIRGINIA

There was only one small producer completed in West Virginia. In Lafayette district, Pleasants County, R. E. Bills and others completed a test on the Oliver Gorrell farm in the Big Injun sand, which was dry. It will make about 1 bbl. a day from the Squaw sand.

In Elk district, Kanawha County, No. 2 of the Valley Gas Co. on the G. W. Harless farm on Indian Creek, which was reported as a 580,000-foot gas well early in February, and which also was producing about 5 bbls. a day, has now had an increase in production and about 15 bbls. a day is being bailed from it.

Oriskany Drilling

The newest test starting in Kanawha County is that of Benedum & Trees on the Joseph Hill farm in Jefferson district, which is now drilling. In Malden district the test of Godfrey L. Cabot, Inc., on the Campbells Creek Coal Co. tract is still shut in waiting for the cement at the bottom of the 5-inch casing to harden.

In Elk district Clyde Oil & Gas Co. has resumed drilling on the F. W. Shinn farm and is drilling by the tools at 3,782 feet. V. C. Smith and others are figured to be within 200 feet of the Oriskany sand on the island at the mouth of Coopers Creek on the Matheney Wertz and others' lease. Benedum & Trees are down 1,500 feet on the Mary C. Wingfield farm.

Gas Wells

In Boone County Boone County Coal Corp. completed a test on its own property in Washington district in the Berea sand at a depth of 2,199 feet. It is a gas well gauging about 500,000 feet a day.

In Cabell County there were two completions. In Guyandotte district Black and Sansom drilled deeper No. 1 on the F. H. Hoswade farm down to 2,900 feet, the Brown shale. It now gauges 1,120,000 feet a day. In McComas district R. H. Adkins completed a test on the H. S. Fraley farm in the Big Injun sand, and it is a fair gas well having 1,600,000 feet a day.

In Calhoun County Godfrey L. Cabot, Inc., completed No. 3 on the G. W. Truman farm in Washington district in the Maxon sand at a depth of 1,560 feet. It is showing for 256,000 feet a day, natural. The Salt sand was at 1,271-1,500 feet. The top of the Maxon sand was at 1,515 feet with gas showing at 1,541-48 feet.

In Ritchie County Burg and Deem completed a test on the W. W. Lawrence farm in Murphy district in the Big Injun and at a depth of 2,080 feet. It has a volume of 300,000 feet a day. In Pleasants County the test of Rachel Run Oil Co. on the Evelyn Mayers on Cow Run in Grant district was dry. It was drilled through the Injun sand.

In Roane County there were two completions. In Smithfield district Spencer Natural Gas Co. completed a test on the R. R. Young farm in the Big Lime at a total depth of 1,948 feet. Gas was struck at 1,942-48 feet, which gauges about 1,400,000 feet a day, natural. On Calf Run, of Laurel Creek, George E. Smith completed a second test on the L. A. Short farm in the Injun sand at a depth of 2,213 feet. It is a gas well of about 200,000 feet a day. It is 700 feet east of No. 1.

In Wirt County Mason and others completed a test on the D. C. Woods farm in Burning Springs district in the Keener sand, and it has a volume of 362,000 feet a day. It was drilled through the Injun sand, which was dry. In the same district Brushy Fork Oil & Gas Co. completed a light gas well on the Wilson heirs farm in the Keener sand at a depth of about 2,027 feet.

Drilling in West Virginia

In Boone County no additional wells have started. In Sherman district Owens Illinois Glass Co. has reached 1,735 feet in No. 23 on the Peytonia Coal Land Co. tract. Pure Oil Co. is down 2,200 feet in No. 3 on the A. M. Prichard lease.

In Cabell County R. H. Adkins and others have reached 500 feet on the Golden Creamens farm in McComas district. Brown Gas Co. is down 1,200 feet in the second test on the Floyd L. Bias farm. Boyles and Baker have rigged up on the Edward Owens farm, a test.

In Calhoun County C. B. Lewis and others are rigging up on the M. J. Kight farm in Sherman district. Dudley Lutz and others have completed a rig on the Eliza Yoak farm, now the M. E. Spoon farm. Boyce Fowler and others have reached 300 feet on the Lowman Fowler farm. A Rothwell and others are on top of the Injun sand on the J. H. Sturms farm. In Lee district F. F. McIntosh is drilling at 2,250 feet on the W. E. Stump farm.

In Gilmer County Steer Creek Oil & Gas Co. has started drilling No. 8 on the C. D. Mollahan farm in Center district. On the mouth of Tanner Creek, in De Kalb district, J. W. Cunningham has a rig completed on the Lee and Ola Gainer farm.

In Ritchie County Claude Cottrell and others are moving in timbers for a rig on the M. Wince farm in Clay district. In this district H. H. Gainer and others have started drilling on the F. L. Lambert farm. C. B. Smith and G. B. Hendershot have completed a rig for No. 4

(Continued on Page 82)

Dozen Completions in Central Ohio Field; Indiana Reports 70 Barrel Producer

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 4.—In the Lima Field, Basic Dolomite, Inc., drilled in a gas well on the company's fee property, Section 14, Liberty Township, Seneca County, at a depth of 507 feet. Tiffin Independent Gas Co. is drilling No. 2 Charles H. Feasel farm, Section 32, same township.

In Wood County, Security Oil Co. abandoned Nos. 1, 9, 10, 11, 12, 20 and 23 on the Henry Diehl farm, Section 21, Freedom Township, and Nos. 2, 3 and 4, Crawfoot-Romler farm, same section.

In Sandusy County, Minna L. Fritz & Co. abandoned Nos. 1, 2 and 3 on the Anna C. Hutchinson farm, Section 32, Madison Township. In Scott Township, Joseph Fritz & Co. abandoned Nos. 10, 11, 12, 13, 14, 15, 16 and 17, on the C. M. and C. B. Homer farm, NW Section 8. Same company abandoned No. 1 Ara Ernst farm, same section. Hurry Up Oil Co. abandoned No. 4 O. D. Dibert farm, Section 8, same township, and in Jackson Township, Neiset Oil Co. abandoned Nos. 4 and 9 on the F. A. Walby 80 acres.

In Seneca County, Tiffin Independent Gas Co. is drilling No. 2 Charles H. Feasel farm, Section 32, Liberty Township.

CENTRAL OHIO

Twelve completions were reported from the Central Ohio Field, two oil producers with an initial of 49 bbls., three dry holes and seven gas wells. In Medina County, Edward Obermiller's No. 1 Frank V. Wood farm, Lot 8, Liverpool Township, was a gas well at 2,795 feet. J. H. Wilt is drilling No. 1 John H. Lawrence farm, Lot 15, same township. F. E. Barnhardt & Co. is drilling No. 5 W. P. White farm, Lot 17, Harrisville Township. Ohio Fuel Gas Co. is starting No. 1 Glen A. McFarren farm, Lot 7, Homer Township. Same company is drilling on the J. C. Treman farm, Lot 50, Granger Township, and is drilling on the Clyde L. Rose farm, Lot 25, Guilford Township, and No. 1 Semko Ostaff farm, Lot 41, Medina Township. W. J. Dempsey is drilling No. 2 E. Adams farm, Lot 3, York Township. McCullen & Dempsey are starting No. 3 on the Davis & Ferguson farm, Lot 3, same township, and Glen Yannayon is starting a test on the Frank Ullrick farm, Lot 19, same township.

In Coshocton County, Preston Oil Co.'s No. 1 C. Mossholder farm, in the third-quarter, of Newcastle Township, produced an initial of 44 bbls. at 3,205 feet. Same company has a location staked for No. 1 William Frazee farm, same section.

In Stark County, East Ohio Gas Co.'s No. 2 L. and L. Roush farm, Section 18, Plain Township, was a gas well at 680 feet. Same company's No. 4 I. and E. Markley farm, Section 9, same township, is a good gas well at a total depth of 4,551 feet.

In Knox County, Upham Gas Co.'s No. 1 Charles E. Wharton farm, Lots 15-16, Butler Township, was dry at a total depth of 3,238 feet. Same company is drilling No. 2 Edward H. Mickle, Lot 40, Union Township. Long Producing Co. has a rig in for No. 2 M.

(Continued on Page 72)

Increased Demand for Michigan Crude Oil Keeps Production Up; Heavy Snows Delay Work

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Mar. 4.—Record daily production of crude oil in Michigan was recognized last week by an increase of 3,000 bbls. a day in the allowable for February retroactive for the past month in addition to the newly increased March allowable of 31,600 bbls. a day in a previous order of the federal oil administration.

It is anticipated this new federal allowable of 31,600 bbls. a day effective March 1 also will be increased at least to 33,000 bbls. a day in view of the continuing demand for Michigan crude indicated by the continued high daily runs of 37,266 bbls. for the week ended February 25, though a decrease of 1,270 bbls. a day from the previous week's high total of 38,536 bbls. a day.

Average daily runs by pools for the week ended February 25 were: Porter-Yost, 29,779 bbls.; Greendale, 3,845; Vernon-Leaton, 2,325; Ogemaw, 589; Montcalm, 246; Muskegon, 237; Oceana, 130; Saginaw-Lapeer, 105; and Beaverton, 10.

The Michigan Producers Proration Committee has asked for a revised schedule this month to keep within the federal allowable with a proration schedule of 75 bbls. minimum exemption plus 40 per cent of individual wells' rated capacity.

New Completions

Although drilling operations were virtually shut down for the first three days of last week by Michigan's worst snow storm of the season, nine completions were recorded, including four oil wells making 2,570 bbls. initial, three gassers for 1,200,000 feet and two dry holes.

The largest new oil well of the week was John F. Melvin's No. 1 Fred DeStoop, SE NE NE Section 2-14n-3w, Chippewa Township, Isabella County, which came in with an estimated daily flow up to 2,000 bbls. a day in the upper Traverse formation at 3,011 feet.

When the drill struck the pay sands of the upper pay stratum, seldom a commercial producing horizon in Central Michigan fields, the oil and gas flow hurled the bailer to the top of the rig and sprayed oil for several hundred feet around. The well flowed 100 bbls. in the first 45 minutes and on a later test of 15 minutes, after being shut in for some time, is reported to have poured 76 bbls. into the field tanks. It is estimated good for at least 80 bbls. an hour, or nearly 2,000 bbls. a day.

The DeStoop lease originally was held by the Dixie Oil Co., now the Stanolind Oil & Gas Co., which drilled one small well and relinquished the lease. Mr. Melvin subsequently leased the farm and staked out three locations, two of which are yet to be drilled. Operations will be started on another test immediately. When production from the Traverse is exhausted, the wells will be carried on to the Dundee 400 to 500 feet deeper.

Porter—Midland

Three new Dundee wells were completed in the Porter Township, Midland County, pool with an aggregate initial of 570 bbls. a day.

Two tests made 250 bbls. a day each, namely: Pure Oil Co.'s No. 6 F. W. Howard, SW SW SE Section 17-13n-1w, and the McHugh-Ajax Oil Co.'s No. 1 Raynor, SW NW NW Section 18, same township. The former was drilled to 3,429 feet, while the latter topped the Dundee at 3,400 feet and drilled to 3,430 feet, making 250 bbls. after acid treatment. Pure's No. 6 Howard also may be treated. C. W. Teater's No. 2 J. M. Wale, NE NW NW Section 22, same township, topped the Dundee at 3,363 feet and drilled to 3,402 feet for 70 bbls. initial and will be treated.

George G. Hanners' No. 2 Porter M. E. Church in Section 17 was plugged and abandoned after deepening to 3,432 feet in a vain attempt to conquer the water for commercial production.

Mount Haley—Midland

W. Hunter Atha's No. 1 E. Bougher, C S NW SW Section 25-13n-1e, Mount Haley Township, Midland County, topped the Dundee at 3,434 feet and was drilling in as a semiwildcat test east of the same operator's No. 1 Moran in Section 28, discovery well in an area 3 to 5 miles east of the Porter Pool. Another Mount Haley test of Mr. Atha's in Section 27 was drilling at about 1,400 feet.

Midland County Wildcats

Howard F. Patterson's No. 1 David Haskins, NW NW SW Section 25-13n-2e, an Ingersoll Township, Midland County, wildcat, was shut down for engine repairs at 3,700 feet, but expected to drill into the Monroe soon after a show.

One test was drilling at about 800 feet in Greendale Township, while three more were starting. One was starting in Section 13 of Jasper Township and two others were as yet uncompleted in Mills and Warren Townships, Midland County.

Isabella County

In addition to the sensational new upper Traverse producer in Chippewa Township, Isabella County, about 20 other tests were active in the county, several of them nearing completion.

Broomfield—Isabella

Three gas tests in Broomfield Township were nearing completion in the Michigan Stray sands as follows: Chippewa Oil & Gas Co.'s No. 1 Mrs. Diehl, C NE SE Section 15-14n-6w, drilling below 900 feet; same company's No. 1 Carl Rhode, C SW NE Section 15, drilling below 1,000 feet, and Fletcher and Lemen's No. 1 Fred Sinclair, C NE NE Section 15, drilling at about 900 feet.

Arbaugh Brothers' No. 1 Ray Aldrich, C NE SE Section 22, was still shut down at 1,047 feet with boiler trouble after many week's delay. One other test is driving pipe in Section 14.

Vernon—Isabella

The Pen-Yan Investment Co.'s No. 1 A. E. Ackerman, SW NW NW Section 12-16n-4w, Vernon Township, Isabella County, after having high hopes of production, was plugged and abandoned as a dry hole in the Dundee topped at 3,793 feet and drilled to 3,894 feet. Two others were shut down in Vernon.

Denver—Isabella

McClanahan Oil Co.'s No. 1 B. Wonsey in Section 33-15n-3w, Denver Township, Isabella County, was pulling casing in an attempt to reset and complete as a commercial producer.

Two others were drilling in Section 28, two were shut down in Section 30, four were starting in Sections 19, 28, 30 and 33, respectively, and there was one other location in Section 33.

Isabella—Isabella

Two tests in Isabella Township and County were nearing the Michigan Stray gas sands as follows: Chartiers Oil Co.'s No. 1 Gus Pollard, C NW NW Section 1-15n-4w, drilling at 1,070 feet, and the Wittmer Co.'s No. 1 John Pollard Estate, C S half SW SW Section 1, drilling at 960 feet.

The Brehm & Bond Syndicate's No. 1 William West Estate, SE NE NE Section 25, was drilling above the Traverse at 2,218 feet, while one other test was being started in Section 13 by Wittmer & Andrews.

Isabella County Wildcats

Pure Oil Co.'s No. 1 Lucy Baker, SW NW SE Section 15-13n-5w, Fremont Township, Isabella County, called the Winn wildcat, was shut down after reaching a depth of more than 3,800 feet with about 3,000 feet of water in the hole. It had been drilled through the Dundee and into the Monroe without success to date.

Three tests in Sherman Township, Isabella County, were shut down, two of them above and the other below the Michigan gas sands and a fourth was starting.

One wildcat in Rolland Township, Isabella County, also was shut down at about 375 feet.

Mecosta County

The largest of three new gas wells was the Gordon Oil Co.'s No. 1 Isabel Wood, C NW NW Section 29-13n-7w, Millbrook Township, Mecosta County, which topped the Michigan Stray gas sands at 1,292 feet, drilled to 1,306 feet and flowed at the initial rate of 1,000,000 feet a day.

Another Millbrook test was shut down at 117 feet and a third was building rig in Section 32 for the Gordon company.

The Lakeside Oil & Gas Syndicate was disappointed when its No. 1 William Dye, C NE NE Section 1-13n-8w, Martiny Township, Mecosta County, had failed to strike gas in the Michigan sands though drilled to 1,393 feet. It is located half a mile from a commercial gas producer and may be carried down for a test of lower formations. One other Martiny test was drilling in Section 15.

The Mecosta Development Co. of Muskegon was reported nearing the Michigan sands in its No. 1 R. C. and Lovicia M. Dart, C NW SW Section 11-14n-9w, in the proved Austin Township, Mecosta County gas field.

Seven other Mecosta County tests were listed in various stages of development in four other townships, namely: One shut down in Aetna Township, two locations in Hinton Township, one fishing in Mecosta Township, two starting and one shut down in Sheridan Township.

Muskegon

The West Michigan Consumers Co., of Muskegon, operators of a natural gas pipe line serving about 25 major industries in Muskegon and Muskegon Heights, is completing two new Monroe gassers in the old Muskegon Township Field, each estimated good for an open flow capacity of about 100,000 feet a day after shooting.

The No. 1 John B. Nichols well, C S half SE NW Section 8-10n-16w, was drilled to 2,266 feet after striking gas pay at 2,245 feet. The No. 1 Stanley Daniloff, SW SW SE Section 5, same township, struck the lower pay sands at 2,258 feet and was drilled to 2,267 feet. The former made 42,000 feet and the latter 53,000 feet natural. Both will be approximately doubled with a shot judging by experience on nearby wells, it was stated by John L. Robinson, West Michigan manager.

The Reed Oil Co.'s J. J. Fischer, SW NE SW Section 10, Muskegon Township, on the Muskegon River flats, failed to develop production in the lower Traverse when drilled to 1,920 feet. It will be plugged back and treated with acid for a light show of oil in the upper Traverse from 1,643 to 1,657 feet.

Western Michigan Wildcats

Anticipated completion of two western Michigan wildcats in the upper Traverse and Dundee, respectively, the first in Logan Township, Mason County, near Walhalla and the second in Arcadia Township, Manistee County, near the village of Arcadia, was delayed by severe winter weather and the heaviest snowstorm of the season.

The Dragoon Development Co., of Muskegon, is preparing to run casing and drill into the upper Traverse next week in its No. 1 W. K. Young, SW NW NW Section 15-17-15w, Logan Township, Mason County. The hole is about 1,920 feet deep with about 30 feet to drill.

T. K. Buzard, trustee's No. 1 fee, NE SW Section 14-24n-16w, Arcadia Township, Manistee County, was shut down at 1,252 feet, where casing was run above the Dundee pay sands and expected to drill in soon.

H. C. Nelson's No. 2 Viola Smith, NW NE NE Section 36-15n-17w, Hart Township, Oceana County, was driving pipe, and John B. Northcott's No. 3 Jane Pinder, W half NE NW Section 31-15n-16w, Elbridge Township, was about to start on an adjoining lease in the Oceana Field.

Ogemaw County

Another West Branch Township, Ogemaw County test, was drilled into the Dundee oil and gas sands and preparing to treat with acid before completion, while a test previously drilled into the Dundee was being completed.

The new well will be the Weber Oil Co.'s No. 1 Anna M. Schick, NW NW NE Section 29-22n-2e, which had a good show after topping the Dundee at 2,534 feet. Theodore Oil Co.'s No. 1 Ogemaw Country Club was completing in Section 20.

One other was drilling in the same township, one was shut down, one fishing, four starting and one on location as activity continued despite wintry weather.

Ogemaw Wildcats

Patterson and Louis' No. 1 William P. Price, SW SW SE Section 31-22n-3e, Churchill Township, Ogemaw County, was drilling into the Dundee as a rank wildcat. One other test was spudding in the same township.

One test was drilling at 2,100 feet in Ogemaw Township, with another driving pipe and two more starting. Two were shut down in Mills Township and one building rig, while a single test in Rose Township was shut down.

Montcalm County

There were six uncompleted tests in as many townships in Montcalm County, with J. W. Leonard, Jr., and others on the No. 1 Otto, and Goldie Durbin, NW NW NE Section 11-10n-5w, Crystal Township, the deepest drilling below 1,800 feet.

One was starting in Day Township, one rigging in Home Township, one drilling in Montcalm and one each shut down in Pierson and Richland Townships.

Saginaw County

The Smith Petroleum Co. drilled into the Berea pay sands with a show of oil

(Continued on Page 82)

Russell Pool in Kansas Extended One Mile South; Big Wells Continue in Central West Kansas

By JAMES McINTYRE

Kansas presents something of interest each week. When operators in that lively oil territory are not bringing in new pools, they are extending pools already discovered and meanwhile the pools of Reno, Rice and Russell Counties are yielding wells of good production. Carey and others' No. 1 Freed in NW NW SW Section 34-13-14w, Russell County, extended the Russell Pool 1 mile south. It is in Siliceous lime at 3,275-3,311 feet and the well hole filled 1,700 feet with oil in seven hours. The Texas Co. got two 1,000-bbl. wells in the Grove Pool in Rice County. Palmer Oil Corp. (formerly carried as Tom Palmer) drilled in a 1,000-bbl. and an 1,800-bbl. well in Russell County. The Burrton Pool in Reno County developed a number of large producers, some of them not yet completed.

Potential Production

The daily allowable crude oil production of Kansas in March will be 139,700 bbls. per day. The Kansas State Corporation Commission rates the potential production of Kansas at 472,438 bbls. per day. Fifty-eight wells are rated between 1,650 to 2,550 bbls., which are given a potential rating of 144,750 bbls., but a daily allowable of 16,666 bbls. Twenty-nine wells are rated from 1,050 to 1,650 bbls. per day, or 37,784 bbls. per day, with an allowable production of 5,679 bbls. per day. One hundred and one wells are rated between 500 and 1,050 bbls., a total potential rating of 64,807 bbls. and an allowable of 12,941 bbls. Three hundred wells with a rated potential of 97,572 bbls. are given an allowable of 25,962 bbls. Three hundred and forty-eight wells rated at 46,557 bbls. have an allowable of 18,199 bbls. Twelve hundred and four wells, with a potential rating of 45,534 bbls., will be allowed to produce 28,426 bbls. All the other wells in the State, 17,466 in number, are not curtailed. They may produce 25,434 bbls. per day. These range from a fraction of 1 bbl. to 4.99 bbls. per day in potential and also actual average production.

The Burrton Pool is credited with 57 wells with a total potential of 144,375 bbls. per day but which will be permitted to produce 16,631 bbls. per day. The Burrton Pool on March 1 had 124 wells all together, with a total potential of 158,764 bbls. and an allowable of 21,092 bbls. The Chase and Grove Pools in Rice County, which are practically one pool, are given a potential of 26,567 bbls. and 18,712 bbls. respectively, or a total of 45,279 bbls. The Nikkell Pool in McPherson County is credited with a 20,058-bbl. potential and the Russell Pool in Russell County with 21,706 bbls.

Cowley and Elk Counties

Watchorn Oil Co. and others were building rig for a test, No. 1 Gregory, SW SE SE Section 6-35-3, Cowley County, close to the Kay County, Oklahoma line. Lloyd, Frost & Study were moving in material for No. 1 Weathered, SW SE SE Section 28-31-3. Connell & Patton were rigged up on No. 1-A Higginbottom, SW NW SW Section 29-31-6.

Trees Oil Co.'s No. 1 Tittsworth, C NW NE Section 30-30-4, swabbed 25 bbls. of oil from a pay at 2,850-58 feet. Lassen's No. 1 Ferguson, SE SE SW Section 21-30-8, was acidized at 2,160-76 feet and later pumped 60 bbls. of oil in the course of 24 hours.

In Elk County, Denny and others were drilling at 600 feet in No. 1-A Eagle Head Ranch, NE cor. Section 19-30-9.

In Sumner County, Continental Oil Co. and Shawver's No. 3 Norris, SE NE SE Section 27-34-2, swabbed 70 bbls. in 24 hours from Chat at 3,444-3,502 feet.

Estimated Production

Estimated daily average production of Kansas for the week ended March 2 and for the preceding week follows:

	Barrels	
	Mar. 2	Feb. 23
Haury-Burrton	21,200	21,650
Hollow	5,450	5,875
Ritz-Canton	10,450	10,600
Voshell	6,700	6,375
Johnson	2,440	2,680
Nikkell	5,575	6,800
Sedgwick	10,700	10,600
Ellsworth County	4,605	3,550
Barton County	1,431	1,550
Rice County	21,571	20,700
Ellis County	421	420
Kingman County	1,145	1,090
Stafford County	1,170	2,040
Russell County	8,250	11,250
Greenwood County	10,750	11,000
Butler County	18,975	19,000
Other pools	15,547	11,570
Total Kansas	146,380	146,750

Sedgwick County

In Sedgwick County, Dickey Oil Co.'s No. 2 Yaw, 150 feet north and 612 feet east of C Section 20-28-1e, flowed 250 bbls. in 12 hours from Chat at 3,084-3,117 feet and was then treated with acid.

Magnolia Petroleum Co.'s No. 5 Robbins, 1,080 feet south and 240 feet east of C Section 20-28-1e, was acidized in Chat at 3,105-13 feet, and pumped 100 bbls. of oil and 110 bbls. of water in 20 hours.

Sovereign Oil Co.'s No. 3 Scherger, 860 feet from south and 350 feet from west lines of NW quarter Section 6-26-1e, had 200 feet of oil in the hole from Kansas City lime at 2,554-2,600 feet, and was acidized.

Reno County

Privett Drilling Co.'s important wildcat test, No. 1 Crotts, NE NW NE Section 27-26-10w, Reno County, is shut down with a hole full of water at 2,712 feet.

Duwe and others were drilling at 945 feet in No. 1 Mildren, C SW SW Section 24-24-8w.

Shell Petroleum Corp.'s No. 1 Hoskinson-A, 2,649 feet north and 1,317½ feet west of SE cor. Section 9-24-4w, cored Siliceous lime at 3,847-69 feet and the hole was being reamed. Hartman & Blair and others had a hole full of oil in No. 1 Carmichael, C SW SW Section 10-24-4w. Chat was topped at 3,293 feet, total depth 3,385 feet. Ponds were dug for Dickey Petroleum Co. and Indian Territory Illuminating Oil Co.'s No. 2 J. Baughman, NW NW NE Section 3-24-4w.

In the Burrton Pool, Reno County, Barnsdall Oil Co.'s No. 7 Sabin-B, NE SE NE Section 11-23-4w, was acidized in Hunton lime at 3,607-15 feet and later pumped 1,577 bbls. of oil in a 24-hour completion test.

Olson Oil Co. and Shell Petroleum Corp.'s No. 6 Downie, NE NW NE Section 14-23-4w, pumped 800 bbls. of oil in 24 hours from Hunton lime at 3,595-3,614 feet and was then acidized.

Olson Oil Co. and Shell Petroleum Corp.'s No. 1 Harner, C SE SE NW Section 14-23-4w, pumped 1,431 bbls. of oil from Hunton at 3,600-18 feet, and after having been acidized pumped 1,600 bbls. of oil in six hours. Same companies' No. 2 Harner, NE NE NW Section 14, flowed 540 bbls. in three hours from Hunton at 3,615-25 feet.

Marathon Oil Co. completed No. 3 Vansickle, SE SE NW Section 23-23-4w. It was acidized in Hunton lime at 3,590-3,610 feet and pumped 1,902 bbls. of oil in 24 hours.

Olson Oil Co. and Shell Petroleum Corp.'s No. 4 Krehbiel, NW NE NW Section 26-23-4w, flowed 540 bbls. in four hours from Hunton at 3,592-3,614 feet.

Deal Oil & Gas Co. and others' No. 3 McElwain, NW NE SE Section 34-23-4w, flowed 250 bbls. in 10 hours from Hunton at 3,582-94 feet.

Gypsy Oil Co. completed No. 5 Krehbiel, C SW NE Section 35-23-4w, in Chat. Five-inch pipe was set at 3,308 feet, total depth 3,370 feet. It was acidized and produced 536 bbls. in 24 hours.

Olson Oil Co. and Sinclair Prairie Oil Co.'s No. 3 Adkins, C NE SW Section 35-23-4w, had Chat at 3,250 feet; 8-inch casing set at 3,260 feet, total depth 3,308 feet and produced 23,000,000 feet of gas in 24 hours. Same operators' No. 4 Adkins, NW NW SW Section 35, pumped 309 bbls. of oil in 24 hours and was then acidized.

Location was made for Derby Oil Co.'s No. 5 Ackley, NW SW SE Section 14-23-4w, and cellar was dug for Olson Oil Co. and Shell Petroleum Corp.'s No. 3 Harner, SE NE NW Section 14-23-4w.

McPherson County

Johnson & Carey and others' No. 1 Dyck, SE NE SE Section 35-22-5w, McPherson County, which was a hole full of water at 3,985 feet, was plugged back to 3,978 feet. Wilcox sand topped at 3,968 feet had not been tested.

L. W. Prunty and others' No. 1 Davis, NE cor. Section 6-22-1w, had Wilcox sand at 3,457-3,518 feet. It produced 17 bbls. of oil and 2 bbls. of water in eight hours.

Shell Petroleum Corp. completed No. 3 Koehn, NE SW NE Section 16-21-3w, in Wilcox sand which was shot at 3,394-3,404 feet. The well pumped 271 bbls. in 24 hours.

W. W. McNabb and Shell Petroleum Corp.'s No. 2 Neufeldt, 330 feet north and 641 feet west of C Section 21-21-3w, pumped 206 bbls. in 18 hours from Wilcox sand at 3,406-21 feet, which was shot with 5 quarts and then with 25 quarts of nitroglycerin.

Lario Oil & Gas Co. and others' wildcat test, No. 1 Base, SW cor. Section 22-20-2w, had Wilcox sand at 3,495-3,510 feet and a hole full of water. The crew had a fishing job.

Lario Oil & Gas Co. and Shell Petroleum Corp.'s No. 2 A. J. Miller, NW SW NW Section 6-20-1w, was completed. It produced 84 bbls. in 24 hours, after an acid treatment in Viola lime at 3,403-27 feet.

Lario Oil & Gas Co. and others' No. 1 Schrag, NW SE NW Section 22-19-4w, a wildcat, was drilling at 3,857 feet with the hole full of water. It had 6-inch casing set at 3,448 feet, Viola lime at 3,726 feet and topped Wilcox sand at 3,804 feet. The water broke in at 3,818 feet.

Marathon Oil Co.'s No. 2 Chindberg, SW SE SE Section 13-19-3w, was a hole full of oil from Chat at 2,985-3,047 feet. It had not been tested.

Shell Petroleum Corp.'s No. 7 Decker, 330 feet from south and 1,025 feet from west lines of SE quarter Section 11-19-2w, was acidized in Viola lime at 3,352-60 feet, and later pumped 50 bbls. of oil and 105 bbls. of water in 24 hours.

Shell Petroleum Corp. was building rig for No. 2 Schmidt, NE SE NE Section 5-22-3w. Marathon Oil Co. was deepening No. 1 Fuerkson, SE SE NE Section 19-22-3w, from 3,488 feet and was drilling at 3,504 feet. Base of the Hunton was at 3,502 feet.

Barton County

Treleaven & Brimm and others' No. 1 Hass, SW cor. Section 30-18-15w, Barton County, which opened a pool in the western side of the county, but which has not yet been completed, pumped 320 bbls. of oil in 24 hours from pay at 3,603-13 feet.

Derby Oil Co. and others were building rig for No. 1 State, NE SE SE Section 4-20-11w, and Stanolind Oil & Gas Co. was deepening No. 1 J. Herder, in Section 17-20-11w, from 3,442 feet and was drilling at 3,466 feet.

Rice County

Twin Drilling Co.'s No. 1 Wenke, SE cor. Section 7-20-10w, had Siliceous lime at 3,306-72 feet. It swabbed 108 bbls. of oil in 10 hours.

Sinclair Prairie Oil Co.'s No. 2 Specht, SE NE SE Section 20-20-10w, is showing for a 50-bbl. well in Siliceous lime at 3,289-94 feet, but had not been tested.

Sinclair Prairie Oil Co.'s No. 5 Volk-

Wildcat Operations in Kansas

Week Ending March 2

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Sam Jarvis et al's No. 1 Morrisse, C SE NE Sec. 23-30-10w.
Rig.

Southern Drlg. Co. et al's No. 1 Davis, 330 ft. from W and 330 ft. from S lines of NE Sec 13-34-15w.
S.D. 2,865 ft.

BARTON COUNTY

D. I. Hall et al's No. 1 Arnold, SE SE SW Sec. 19-18-15w.
Moving in tools.

McMorrow & Spencer's No. 1 Hagen, NE cor. Sec. 33-20-11w.
Spudded.

C. L. Price et al's No. 1 Ehrlich, NW SE Sec. 10-16-13w.
T.D. 360 ft.; fishing.

Suppes & Witt's No. 1 Hayes, SW cor. Sec. 6-16-15w.
Ponds.

Treleaven & Brimm et al's No. 1 Haas, SW cor. Sec. 30-18-15w.
6-in. 3,405 ft.; Reagan sand 3,585 ft.; pay 3,603-06 ft.; T.D. 3,613 ft.; pumped 320 bbls. in 24 hrs.

BUTLER COUNTY

Trees & Harwood's No. 1 Henley, SW SE NE Sec. 7-24-8.
Rigged up.

CLAY COUNTY

Seidel Bros.' No. 1 Younken, C S½ SE NW Sec. 21-9-4.
5-in. liner 1,635 ft.; T.D. 1,730 ft.; S.D.

COWLEY COUNTY

Tom Palmer's No. 1 Wentworth, NW NW NE Sec. 9-35-2.
Shot with 15 qts. at 3,412-17 ft.; no test.

Lloyd, Frost & Study's No. 1 Weathered, SW SE SE Sec. 28-31-3.
Material.

A. McCoy's No. 1 Brandenburg, SW SE SE Sec. 17-34-5.
Rigged up.

Wakefield et al's No. 1 Newton, SE cor. Sec. 21-30-2.
Rig.

ELK COUNTY

Lassen's No. 1 Ferguson, SE SE SW Sec. 21-30-8.
1,760,000 ft. of gas 2,956-5 8ft.; 5-in. csg. 2,160 ft.; sand 2,169-76 ft.; T.D. 2,181 ft.; acidized; pumped 60 bbls. oil.

Lee Tippey's No. 1-A Stonebreaker, SE SE SE Sec. 32-28-11.
Drlg. 1,115 ft.

ELLSWORTH COUNTY

Carter Oil Co. et al's No. 1 Teuber, 440 ft. N and W of C Sec. 26-17-9w.
8-in. 2,378 ft.; drlg. 2,530 ft.

Pryor & Lockhart's No. 1 Gregory, SE SE SE Sec. 19-16-8w.
Rigging up.

HARVEY COUNTY

O. J. Connell et al's No. 1 Roth, SW cor.

(Continued on Page 90)

land, SW SW SE Section 20-19-9w, swabbed 192 bbls. of oil in six hours from Siliceous lime at 3,202-23 feet.

Gypsy Oil Co. completed No. 1 Callis, NW cor. Section 28-19-9w. It was acidized in Siliceous lime at 3,238-59 feet and pumped 857 bbls. of oil in 24 hours.

Shell Petroleum Corp.'s No. 2 Tournear, NE NW SE Section 29-19-9w, swabbed 258 bbls. of oil in six hours from Siliceous lime at 3,217-35 feet.

Texas Co. completed No. 5 Grove, NW NW NE Section 29-19-9w. It pumped 1,058 bbls. of oil from Siliceous lime at 3,203-12 feet. Same company's No. 6 Grove, SE NW NE Section 29-19-9w, was also completed. It pumped 1,037 bbls. in 24 hours from Siliceous at 3,194-3,203 feet. Neither well had been acidized.

Gypsy Oil Co. made a location for No. 5 Malone, NE SE NW Section 18-20-9w. Gypsy Oil Co. was building rig for No. 2 F. Steckel, C W half SE NW Section 31-19-10w. Shell Petroleum Corp. was building rig for No. 3 Tournear, SW NW SE Section 29-19-9w.

Marion County

Youker and others were running 12-inch pipe at 2,948 feet in No. 1 Bernhardt, C SE NW Section 7-18-4, Marion County, a wildcat.

Rush County

Morgan & Flynn and others were moving in material for No. 1 Schlegel, SE SE NW Section 26-17-16w, a wildcat in Rush County.

Ellsworth County

Slick, Pryor & Lockhart's No. 3 Breford, NW SW NW Section 7-17-10w, in the Breford Pool in Ellsworth County, was a hole full of water in Siliceous lime at 3,383-3,405 feet, and was abandoned.

In the Rolfs Pool, Atlantic Oil Producing Co.'s No. 2 Rolfs, NE NE SE Section 14-17-9w, pumped 856 bbls. in 24 hours from Siliceous lime at 3,197-3,200 feet.

Russell County

Hartman & Blair have abandoned their No. 1 Swartz, SE SW NE Section 8-15-14w, in Russell County, which was a hole full of water from Siliceous lime at 3,309-21 feet.

Empire Oil & Refining Co.'s No. 3 Krug, NE NW NW Section 24-15-14w, found Siliceous lime at 3,369-98 feet. It was acidized twice, the last dose bringing out a 40-bbl. oil production in 48 hours.

Texas Co.'s No. 1 Holland, SW NW SW Section 13-14-15w, had Siliceous lime at 3,252-56 feet and the hole filled 3,100 feet with oil.

J. J. Hall and others completed No. 1 Miller, NW NE NE Section 31-14-15w, which had been deepened from 3,043 feet to 3,155 feet. It pumped 597 bbls. in a 24-hour test.

Palmer Oil Corp. completed No. 3 Steinle, 330 feet from east and 1,320 feet from north lines of SE quarter Section 22-13-14w. It pumped 1,848 bbls. in 24 hours from Siliceous lime, depth not ascertained.

Palmer Oil Corp. completed No. 3 Killian, 850 feet from south and 300 feet from west lines of NW quarter Section 27-13-14w, which was acidized in Siliceous lime at 3,279-81 feet. It pumped 1,506 bbls. of oil in 24 hours.

Lario Oil & Gas Co.'s No. 1 Moore, 760 feet south and 660 feet east of NW cor. Section 34-13-12w, was abandoned. The hole filled with water from Siliceous lime at 3,422-25 feet.

British-American Oil Co. was moving in material for No. 1 Boxberger, NE cor. Section 33-13-14w. Ponds were dug for Buffalo Oil Co.'s No. 4 Schaffer-Anschutz, SW NW SW Section 27-13-14w. Palmer Oil Corp. had cellar dug for No. 4 Borrell, C E half E half SE Section 21-13-14w. Texas Co. made a location for No. 1 Anschutz, NW NW SW Section 1-14-15w. Bridgeport Machinery Co. had cellar dug for No. 1 Witt, NW NW SW Section 3-14-15w. Aylward and others were building rig for No. 3 Mills, SW SW NE Section 4-14-15w. Vernon & Murphin made a location for No. 1 Becker, NE cor. Section 32-15-14w.

Largest Gas Well Ever Completed in the Kent County, Ontario Field

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 2.—In the De Clute Field, Kent County, Ontario, Gas Producers Syndicate's No. 3, Gilbert Pardo farm, E half Lot 140, Talbot Road, Raleigh Township, has been finished as the largest gasser ever completed in Kent County. It got the initial gas production at about 1,488 feet but was deepened to 1,538 feet, developing a flush production estimated at 20,000,000 feet a day. This settled to around 15,500,000 feet.

The new well represents the easternmost production yet developed in the De Clute Field, which lies some distance east of the old Tilbury Field, in the south end of Raleigh Township close to Lake Erie. The Pardo lease is about 2½ miles west of Cedar Springs and close to No. 3 Provincial Highway.

The De Clute Field was opened about 10 years ago and has been largely developed by the Union Gas Co. though some of the earlier wells were drilled by the American Engineering Co. headed by R. L. Pattinson of Chatham. Some years ago a wildcat test a short distance west of Cedar Springs finished dry, and prospects in that direction were considered negligible.

Drilling on the Gilbert Pardo lease, covering Lot 139 and the E half of Lot 140, was started last fall by the Gas Producers' Syndicate, composed of 15 Detroit business men. All the drilling so far has been in the E half of Lot 140. No. 1 finished last November with a natural flow of 391,000 feet from two sands, bottoming about 1,579 feet. A shot increased this to 1,500,000 feet a day. No. 2, about 1,050 feet south of No. 1, got a natural flow of 5,500,000 feet a day and was finished without a shot. No. 3 is about 1,450 feet south of No. 2.

Production is contracted to the Southern Ontario Gas Co., which recently laid 7¼ miles of 4-inch pipe to deliver the gas to the main transmission line south of Merlin. No 3 producer has been connected with the line. No. 3 is the fifth producer finished in the De Clute Field within a few months. A little farther west Union Gas Co.'s No. 26, E half Lot 142, Talbot Road, finished a few weeks ago with better than 5,000,000 feet a day.

Later, Union's No. 27, W half Lot 140, Talbot Road, offsetting Gas Producer's No. 2 some 500 feet to the northwest, finished with a production somewhat better than No. 26.

Completion of Gas Producers' No. 3 as the largest well in the field will probably result in drilling still farther to the east. In that direction Gas Producers' Syndicate holds Lot 139, but acreage farther east is understood to be held by other interests.

In the Dover Field, Kent County, Medina Natural Gas Co.'s No. 1, J. Stirling lease, E half Lot 1, Concession 4, Dover East Township, has been turned into the line recently completed by Southern Ontario Gas Co. Settled production is somewhat below the initial figure of 5,500,000 feet a day from the Trenton limestone at 3,025 feet. Offsetting Medina's No. 1 some 250 feet to the west, Ajax Oil & Gas Co.'s No. 10, W. Stirling lease has landed 10-inch casing at 277 feet after getting the top lime about 2 feet higher than Medina's No. 1. Prairie Oil & Gas Co.'s No. 3, Stephens farm, Lot 2, Front Concession, is below 300 feet.

Eden Field

In the Eden Field, on the Norfolk-Elgin county line, Basil Sundy of Tillsonburg, drilling for the Middleton-Norfolk Gas Co. has brought in No. 2 gasser on the Vernon McDonald farm, Lot 5, Concession 3, North Talbot Road, Middleton Township, Norfolk County, about 4 miles southeast of Tillsonburg. At about 900 feet it started with sulphur gas flow estimated as high as 4,000,000 feet a day, accompanied by a heavy water flow. A pump was put in but some difficulty is being experienced in handling the water flow. Similar conditions, but with a smaller gas and water flow, were met some weeks ago in Middleton-Norfolk's No. 1, a little distance north and west on the same farm. No. 1 was deepened and left standing at 1,020 feet. The producing horizon here is distinct from that in the E. P. Rowe gassers a little farther west, on the Elgin side of the county line, where sweet gas is met around 1,200 feet with no water trouble.

On the Norfolk side, Midway Oil & Gas Co.'s No. 1, Lot 2, Concession 3, North Talbot Road, Middleton Township, is at 800 feet and waiting for casing. On the Elgin side, E. P. Rowe's Nos. 1 and 2 on the Alton farm, Bayham Township, west of the producers on the Coyle farm, have started drilling.

South Turner Valley

In Alberta, Union Freehold Oil Corp.'s No. 1, LSD 8, Section 21-18-2w5, about a half mile south of the nearest production in the South Turner Valley Field, got the brown lime of the Dalhousie formation at 5,322 feet, with a good show of wet gas and light crude. Casing is being cemented at 5,326 feet before drilling into the Dalhousie. Earlier figures put the depth of the Dalhousie at 5,491 feet, so that the depth to the lime will be approximately 170 feet less than estimated. In the same section, Northwest Royalties' No. 1 Prairie, which resumed recently after a long shutdown, is below 2,260 feet.

In Section 28-18-2w5, Publix Oil & Gas Co.'s No. 1, LSD 8, on the east side, is below 5,085 feet, about 185 feet in the Madison lime, with wet gas flow estimated between 5,000,000 and 6,000,000 feet a day. Pressure built up to 650 pounds with around 3,000,000 feet flow, and a good producer is anticipated. Hard bands of lime have slowed the drilling, a tour making at times only a couple of feet.

In the same section British Dominion Oil & Development Corp.'s No. 4, LSD 6, is cleaning out caving after a fishing job in the Home sand at 5,240 feet. It has a little gas. Farther west Renfrow Royalties' No. 1, LSD 3, is shut down at 4,410 feet waiting for casing. On the east side Merland Oil Co.'s No. 2, LSD 13, Section 27-18-2w5, is standing cemented at 2,875 feet.

In the North Turner Valley Field, Royalite Oil Co.'s No. 26, LSD 5, Section 23-20-3w5, is below 3,172 feet.

On the Aldersyde structure, east of the Turner Valley Field, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-28w4, is cleaning out at 6,263 feet after running 5-inch casing to bottom. It will be drilled deeper into the sand. Globe Development Co. of Calgary has located No. 1 in LSD 3, Section 2-20-29w4, southwest of Ranchmen's No. 1, the development being handled by Globe Royalties, Ltd. Globe Development Co. holds LSD's 3 and 6 in this section. E. B. Taylor and associates of Calgary have bought the E. W. Bricker tract in LSD 15, Section 12-20-29w4, a mile south of Ranchmen's No. 1, and will likely drill this spring. A Vancouver, British Columbia, group have secured the NW of the same section.

Tests in the Foothills

On the Highwood-Sinclair structure, south of Turner Valley, Canadian Royalties' No. 1 Banner, LSD 6, Section 34-17-3w5, is at 1,018 feet and will run casing to overcome caving. At this depth it is estimated within 200 feet of the Home sand. Farther south, arrangements are being made for resumption of Pekisko Hills Co.'s No. 1, LSD 6, Section 6-17-2w5, standing in the Madison lime at 2,315 feet.

Red Coulee Field

In the Alberta end of the international Red Coulee Field, O. R. Lang, drilling contractor, has the contract for No. 7 well for Vanalta, Ltd. Vanalta's No. 3, LSD 3, Section 4-1-16w4, was off structure and finished a dry hole. Drilling equipment is being moved in, and No. 7 will spud some time in March.

British Columbia

Shareholders of Amalgamated Oils, Ltd., held their annual meeting recently at Vancouver, British Columbia, when the directors were re-elected and reports on the year's operations approved. The company holds some 11,963 acres in the Sage Creek and Flathead areas of southeastern British Columbia. Columbia Oils' No. 1, drilling in the Sage Creek area on Amalgamated acreage, is below 2,310 feet.

Hudson Bay Junction

In the Hudson Bay Junction area of northern Saskatchewan, Trail Blazer Oil & Gas Co.'s No. 1, SW Section 32-44-3w2, is preparing to resume from 610 feet. At this depth it was 20 feet in a sand containing asphaltic crude, which rose 100 feet in the hole. Casing will be run before deepening.

Amalgamated Gas & Oil Co. of Winnipeg is testing structure south of Hudson Bay Junction. No. 1 structure test encountered some gas, which is being used for drilling fuel. No. 2, spudded recently, is below 100 feet; and No. 3, located 1,000 feet north of No. 2, will be started early in March. The company is planning a series of structure tests before drilling a commercial well. Geological investigation indicates a fairly extensive structure.

Central West Fields

(Continued from Page 69)

Varner farm, Section 14, Fallsburg Township.

In Guernsey County, Four Leaf Oil & Gas Co.'s No. 1 R. S. Grimes farm, Monroe Township, was a gas well at 1,197 feet. William Larrick and others' No. 1 Nora V. DeGolier farm, Lot 19, produced 5 bbls. initial at 3,396 feet.

In Perry County, Wiser Oil Co.'s No. 1 Franklin King farm, was a gas well at 2,841 feet. Perry Sturm and others' No. 4 D. O. Petty farm, Section 20, Reading Township, was dry at 3,000 feet.

In Meigs County, Ohio Fuel Gas Co.'s No. 1 Mollie T. Brookman farm, Section 36, was a gas well at a depth of 1,950 feet.

In Athens County, D. T. Orndoff's No. 1 Lewis Morris farm, Lot 1, Ames Township, was a gas well at 1,588 feet.

INDIANA

In Gibson County, Big Four Oil & Gas Co.'s No. 2 Lottie Hope farm, SE Section 18, Washington Township, produced an initial of 70 bbls. at a total depth of 1,735 feet. Gem Oil Co.'s No. 2 S. M. and W. S. Ferris farm, SE Section 5, was dry.

In Knox County, Gardner Petroleum Co.'s No. 1 Starner Bond farm, NE Section 11, Busseron Township, was a gas well. Mead Oil Co.'s No. 3 E. Blane farm, Section 15, same township, was a gas well at 614 feet, and its No. 1 Bland & Burton Brothers farm, Section 14, was dry at 640 feet. W. A. Sage is drilling on the J. W. Emison farm, in Johnson Township.

In Pike County, H. C. Darby and others are drilling on the Samuel Deering farm, Section 29, Lockhart Township.

KENTUCKY

Four completions were reported from the Ohio County Field of Kentucky. J. C. Miller and others' No. 2 Wavey Sanders farm, south of South Fordsville, produced 20 bbls. initial, and same parties' No. 5 J. Edward Smith farm, produced 10 bbls. B. E. Calvert and others' No. 5 W. Smith farm, same area, produced 15 bbls. initial, and Mecca Oil Co.'s No. 8 Smith farm, same pool, was dry.

Oklahoma City Deep Wells Did Not Produce Their Allowable; Taking New Potentials

By JAMES McINTYRE

Oklahoma produced only 457,825 bbls. of oil per day in the week ending March 2, as against 499,025 bbls. the week before. The last week of the month is usually the week of lowest production, the first and second weeks, usually being used to take the bulk of the production permitted for the month.

The week in review passed with little field news of interest aside from the disturbing report that salt water has shown in a producing well in the Fitts Pool. Stanolind Oil & Gas Co.'s No. 2 Hardin, SE SW SE Section 25-2-6, completed in January was reported to be producing about 8 per cent water with its oil, and that the product had to be treated to remove the water. Some of the neighboring operators were of the opinion that it is drilling water which had been forced into the oil sands in the washing-in operation, and forced out with the oil, but others take the less favorable view of the situation. Seminole Field operators were disturbed by an early appearance of water, and that field went on artificial oil lift early, but it kept on producing oil in large volume and it had produced over 554,000,000 bbls. of oil up to the first of this year and still finds it easy to produce 75,000 bbls. per day whenever called upon. Cushing deep sand wells also experienced water intrusion soon after completion, but that field has produced about 320,000,000 bbls. of oil and is good yet for 12,000 bbls. per day in its twenty-third year.

Notwithstanding its shallow depth the Altus Field in Jackson County is developing very slowly. The latest well to show production is Petroleum Production Co.'s No. 1 SW SW SE Section 34-2n-20w, which swabbed 35 bbls. in six hours. Preparations were being made to put the well on the pump.

The Oklahoma City Field is going the way of all oil fields. Notwithstanding its ability to produce a large volume of crude daily it is coming rapidly to the stage where every well in the field will be on some sort of lift. Few wells in the field are producing naturally even now and in February the Wilcox sand zone did not make its allowable production. It was 9,000 bbls. short of the quantity it was permitted to produce during the month. Potential tests in the field were started Saturday, March 2, and it is estimated that the tests will show a decline in the Wilcox sand zone potentials of 50 to 60 per cent. Only five wells were actively drilling in the field at the close of the week.

W. A. Delaney and others' No. 1 H. Diamond, NW NW SE Section 5-1-8, a wildcat southeast of the Fitts Pool will be abandoned and the crew was pulling pipe. Sulphur water was found in the Bromide series which was found high in that locality. Top of Bromide lay at 2,130 feet, first sand 2,170-77 feet, producing water; second sand at 2,300 feet and McLish at 2,373 feet total depth 2,772 feet.

Crescent Pool

In the Crescent Pool in Logan County, Mid-Continent Petroleum Corp.'s No. 2 Campbell, SE SE NE Section 33-17-4w, flowed 750 bbls. in 11 hours through three-quarters inch choke from sand at 6,080-95 feet, total depth 6,103 feet, in dolomite and lime.

Lincoln County

Texas Co. completed its No. 2 Gessman, SW SE NE Section 33-14-4, Gessman Pool, in Lincoln County, in Cleveland sand at 3,061-71 feet. It flowed 100 bbls. in six hours on a potential test. Same company's No. 2 Coyle, NW SW NW Section 34-14-4, had Cleveland sand at 3,045-55 feet, total depth, and was preparing to wash it in. Texas Co. made a location for No. 1 Hughes, NW NW NE Section 34-14-4.

Noble County

In the Lucien Pool in Noble County, Sinclair Prairie Oil Co.'s No. 3 Smith, SE NE NE Section 28-22-2w, was shot with 40 quarts at 4,902-30 feet, and swabbed 125 bbls. in 24 hours. The crew was cleaning out.

In the Polo Pool, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Veitz, C NW SW Section 27-20-2w, had dolomite at 5,010-73 feet and Wilcox sand at 5,073-99 feet. The well flowed 897 bbls. in 11 hours and 885 bbls. the second day. Tubing was being run.

Osage County

There were no completions in Osage County. Lewis Oil Co. and Continental Oil Co.'s No. 5, 980 feet from south and 300 feet from west line of SE quarter Section 16-24-7, had Bartlesville sand at 2,582-90 feet and flowed 480 bbls. per day. The owners may shoot.

Lewis Oil Co.'s No. 7, NW NE SW Section 16-24-7, had sand at 2,598-2,660 feet, was shot at 2,612-59 feet and flowed 515 bbls. in 24 hours.

Ray Branstetter's No. 1-A C W half W half SE Section 28-22-11, had Siliceous lime at 2,010 feet and pay at 2,040-50 feet. It flowed 55 bbls. the first day and makes one flow a day. It will be acidized.

The Bay Oil Co. and Norbla Oil Co.'s No. 1-A, NW NW NW Section 30-22-8, flowed 3,368 bbls. in the first 5 days and 14 hours after having been acidized in Siliceous lime at 2,904-11 feet and at 2,923-25 feet. This well opened a Siliceous lime pool, as was mentioned last week.

New work in Osage County included W. C. Norris' No. 2, SW SE SW NE Section 29-21-11, cellar; Western American Oil Co.'s No. 21, NW NW SW Section 4-24-10, location; Lewis Oil Co. and Continental Oil Co.'s No. 6, NE SE SE Section 9-24-7, location; A. H. Kasishke's No. 2, NE SE NE Section 16-24-7, deepening from 2,594 feet, rigged up; the Texas Co.'s No. 5, 310 feet south and 820 feet west of C Section 17-21-10, moving in material; the Texas Co.'s No. 5, 460 feet north and 725 feet west of SE cor. Section 19-25-8, moving in material to deepen from 1,133 feet.

Empire Oil & Refining Co.'s No. 1, NE SE NW Section 2-25-3, is being plugged to abandon. It had Mississippi lime at 3,500 feet, and was drilled to 3,576 feet.

Estimated Production

Estimated production by pools in Oklahoma for the week ended March 2 and for the preceding week follows:

	Barrels	
	Mar. 2	Feb. 23
Allen	8,625	8,625
Asher-West Asher	1,400	1,425
Burbank	8,500	8,800
South Burbank	10,000	10,000
Balance of Osage	27,500	27,500
Blackwell	4,700	4,800
Bristow-Slick	9,500	9,500
Chandler	5,750	6,000
Crescent	4,575	4,800
Cromwell	4,250	4,300
Cushing-Shamrock	12,750	12,750
Duncan district	4,250	4,150
Edmond	1,200	1,250
Fish	8,200	7,850
Fitts	11,525	10,750
Gray	1,475	1,875
Graham	3,650	3,500
Healdton	9,000	9,100
Hewitt	4,800	4,800
Holdenville	1,775	1,950
Keokuk	950	1,925
Konawa	2,475	2,500
Lucien	8,375	9,100
Marshall-Lovell	850	1,000
Oklahoma City	127,750	159,125
Papoose	1,300	1,300
Polo	3,225	2,400
Sasakwa and townsite	2,225	2,225
Sholem-Alechem	4,000	4,000
Seminole Field:		
Bowlegs	10,725	11,625
Carr City	5,225	5,900
Earlsboro	8,800	9,050
East Earlsboro	7,850	8,275
South Earlsboro	900	900
Little River	11,725	13,850
East Little River	1,000	975
Maud	1,450	1,500
Mission	3,750	3,775
Seminole	9,375	10,575
East Seminole	1,275	1,300
Searight	3,850	3,900
Total Seminole	65,925	71,525
St. Louis-Pearson	20,375	23,750
Tatums	5,600	5,000
Tonkawa-Garber-Thomas	6,000	6,000
Wewoka	3,800	3,850
Yale-Jennings	4,750	4,750
Other pools	55,800	56,750
Total Oklahoma	457,825	499,025

Okfuskee County

Mid-Continent Petroleum Corp.'s No. 1 Haney, SW SE NE Section 24-12-8, Okfuskee County, which was a hole full of water from second Wilcox sand at 4,130-66 feet, total depth, was plugged back to 4,034 feet and acidized. Viola lime lay at 4,079 feet.

Greater Seminole Area

Carter Oil Co. and others completed No. 1 Nichols C-28, C N half SW Section 2-10-6, North Searight Pool. It swabbed 662 bbls. in 20 hours from Misener sand at 4,137-43 feet.

Magnolia Petroleum Co.'s No. 1 Gates, NE SW NW Section 20-9-5, Earlsboro Pool, was completed. It swabbed a potential production of 301 bbls. in eight hours from Hunton lime at 4,194-4,232 feet, total depth 4,235 feet, in Sylvan shale.

Olympic Oil Co. in its No. 1 Dixon, NE SW NW Section 12-9-8, Seminole County, which had been drilled to 4,279 feet, 2 feet in the Wilcox sand, where

Wildcat Operations in Oklahoma

Week Ending March 2

NORTHERN OKLAHOMA

BECKHAM COUNTY

Fred Coogan et al's No. 1 Shelton, SW cor. Sec. 33-10-25w.
Drlg. 1,090 ft.; (correction).

CADDO COUNTY

H. W. Lee et al's No. 1 Stacey Ferrell, SW NE NE Sec. 3-6-13w; (2,000-ft. test).
Lowering 8-in. csg. 2,003 ft.; showing of oil at 1,960-2,003 ft.

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w.
T.D. 11,230 ft.; C.O. to 10,000 ft.; flowing by heads 100 bbls. oil every other day.

CARTER COUNTY

Waco Turner's No. 1 Munson, NW NW NE Sec. 35-5s-2w.
Building rig.

CLEVELAND COUNTY

Sinclair Prairie et al's No. 1 Franklin, SE NW SE Sec. 21-10-2w.
Drlg. 3,000 ft.

COAL COUNTY

J. D. Petty Oil Co.'s No. 1 McMillan, SW NW NE Sec. 16-1s-8.
S.D. 1,110 ft.

H. P. Potts' No. 1 Nichols, C SW SW NW Sec. 32-2-9.
T.D. 1,375 ft.; running csg.

GARFIELD COUNTY

Herndon Drlg Co. et al's No. 1 Allen, NE NE SW Sec. 35-24-3w.
Drlg. 3,030 ft.

GARVIN COUNTY

Charles Carter and W. S. Key, Inc.'s No. 1 Wood, C NW SW SE Sec. 5-4-3e.
Set surface pipe.

National Prod. Co.'s No. 1 Littrell, NE NE NE Sec. 31-2-3w.
6⅝-in. csg. 1,244 ft.; drlg. 1,340 ft.

George L. Pace's No. 1 Smith, SW NE Sec. 35-1-1.
Spudded and S.D.

George Pace et al's No. 1 Smith, SW SW NE Sec. 35-1n-1e.
Moving in material.

GRADY COUNTY

Carter Oil Co. and Magnolia Pet. Co.'s No. 1 Harrison C-34, C NW NW Sec. 28-8-5w.
T.D. 5,963 ft.; cmt. plug placed at 5,900-5,450 ft.

GRANT COUNTY

Helmerich & Payne's No. 1 Crouse, C NE SW Sec. 29-25-3w.
T.D. 6,030 ft.; set 8-in at 6,026 ft.; cmt. plug.

GREER COUNTY

Morgan et al's No. 1 Corder, C SW SE Sec. 19-4-22w.
Rigging up rotary.

HUGHES COUNTY

Amerada Pet. Corp.'s No. 1-A Adams, NE NE SW Sec. 31-9-9.
Cromwell 3,347 ft.; drlg. 3,395 ft.

Dandridge & Crane's No. 1 Mead, NW NW NE Sec. 17-5-9.
Drlg. 950 ft.

Freeman et al's No. 1 Kite, NW NW NE Sec. 8-6-10.
Set 8-in. csg. 598 ft.

Turner et al's No. 1 Williams, SW cor. Sec. 35-7-10.
S.D. at 538 ft.; moved out tools.

KAY COUNTY

Harris & Haun's No. 1 Schuessler, C NW SW Sec. 3-28-2.
Fishing for tools at 2,620 ft.

Bay Oil Co.'s No. 1 Holden, SW SW SE Sec. 14-28-3.
8-in. 2,945 ft.; drlg. plugs.

KINGFISHER COUNTY

Black Gold Oil Co.'s No. 1 Cole, C SW NE Sec. 24-18-5w.
T.D. 6,137 ft.; lost circulation; cmtd. with 500 sacks.

LINCOLN COUNTY

Chester L. Carlock's No. 1 Young, C N½ NW NW Sec. 23-15-5.
Rig

Slick-Urschel's No. 1 Miller, NW SE Sec. 25-15-3.
Drlg. 4,640 ft.

LOGAN COUNTY

Shell Pet. Corp. et al's No. 1 Hirsel, SE SW SW Sec. 7-16-2w.
Viola 5,674 ft.; Simpson 5,842 ft.; Wilcox 5,863 ft.; coring 5,891 ft.

Sinclair Prairie and Slick-Urschel's No. 1 Koatsch, SW cor. Sec. 23-15-3w.
Drlg. 4,160 ft.

Sinclair Prairie Oil Co. et al's No. 1 School Land, SE cor. Sec. 36-17-1w.
Simpson dense 5,255 ft., T.D.; flowed 293 bbls. in 24 hrs.

Slick-Urschel et al's No. 1 Pennington, C SW NE Sec. 10-16-1w.
Layton sand 3,745 ft.; drlg. 3,845 ft.

J. C. Schaffer et al's No. 1 Cronkite, SE SE SW Sec. 10-15-4w.
Drlg. 2,985 ft.

LOVE COUNTY

Amerada and Stanolind's No. 1 W. & D., NW SE SE Sec. 27-6s-5e.
T.D. 1,873 ft.; crooked hole; may skid rig for new hole.

McCLAIN COUNTY

C. W. James et al's No. 1 Neal, C NW SE SW Sec. 4-5-3.
Hunton 3,335-37 ft.; running 8-in. csg.

NOBLE COUNTY

Marathon Oil Co.'s No. 1 Gilbert, NE cor. Sec. 24-22-2.
Wilcox sand 4,449 ft.; T.D. 4,480 ft.; flowed 392 bbls. in 21 hrs. after shut in 47 hrs.; completed.

OKFUSKEE COUNTY

Amerada Pet. Corp.'s No. 1 Jaynes, NW NW SW Sec. 20-10-10.
Hunton 3,690 ft.; 10,000,000 ft. of gas at 3,704 ft.; fishing at 3,749 ft.

Mid-Continent Pet. Corp.'s No. 1 Haney, SW SE NE Sec. 24-12-8.
Acidized Wilcox sand 4,125-34 ft.

OKLAHOMA COUNTY

W. H. Atkinson et al's No. 1 Reed, NE cor. Sec. 4-12-3w.
Rig up and boilers in; S.D.

Anderson & Kerr et al's No. 1 Linn, SW NW Sec. 17-14-2w.
Rigged up.

R. Carl Larkin's No. 1 Brobine, NW NW NE Sec. 33-13-5w.
Rig and pits.

OSAGE COUNTY

Peters Pet. Co. and Norbla Oil Co.'s No. 1, SW cor. Sec. 15-25-5.
S.D. at 3,134 ft.

PAYNE COUNTY

Marathon Oil Co.'s No. 1 Potts, C SW SW Sec. 27-19-2.

(Continued on Next Page)

it found water, was plugged back to Misener sand which was topped at 4,017-27 feet.

Pure Oil Co. and Sovereign Oil Co.'s No. 2 Coke, NW SE NE Section 2-8-5, Seminole County, which had water at 4,403 feet, total depth, was plugged back to 4,040 feet. Hunton lime at 4,003-16 feet, will be shot.

Clark and others' No. 1 Jordan, SE SW SE Section 10-7-4, St. Louis area, swabbed 15 bbls. per hour from dolomite at 4,154-56 feet. It had not been treated.

Magnolia Petroleum Co.'s No. 2 Mona, SW SE NW Section 11-7-4, was completed. It had Hunton lime at 3,755 feet, set 7-inch pipe at 3,765 feet, topped Sylvan at 3,963-69 feet, total depth. It was plugged back to 3,960 feet and acidized and swabbed 220 bbls. of oil net in six hours and swabbed 1,041 bbls. of oil in 48 hours.

Magnolia Petroleum Co. completed No. 2 Jones, NW NW NE Section 18-7-4. Hunton lime at 3,800-54 feet was acidized and the well flowed 364 bbls. of oil gross in four hours, and swabbed 1,177 bbls. of oil in 48 hours.

In the Fish Pool's Wilcox sand zone in Section 31-7-8, Seminole County, Mid-Continent Petroleum Corp.'s No. 3 Harjoche, NW SW SE Section 31-7-8, had Wilcox sand at 4,183-4,200 feet and flowed 900 bbls. of oil in nine hours. It was not completed.

Howard Sherman and others have cellar and pits dug for No. 1 Wingo, NE NW SE Section 32-10-5, Pottawatomie County (ownership corrected).

Barnsdall Oil Co. has cellar and pits dug for No. 1 Harris, NW NW SE Section 15-8-5 (farm name corrected).

Baskin & Leeper were building rig for No. 2 Coppedge, NW SE SE Section 16-7-8, Seminole County. Mid-Continent Petroleum Co. was building rig to deepen No. 1 Schrader, NW NW NE Section 6-6-5, Pottawatomie County.

Pontotoc County

Meyer and others' No. 1 Jackson, SW NE SW Section 22-5-6, an old well deepened from 1,765 feet to 1,990 feet, was dry and abandoned.

Southern Oil Co.'s No. 1 Waller, a wildcat, NW NW SW Section 11-4-6, was shut down at 820 feet after getting an estimated 8,000,000-foot gas production in sand at 785-816 feet.

In the Fitts Pool

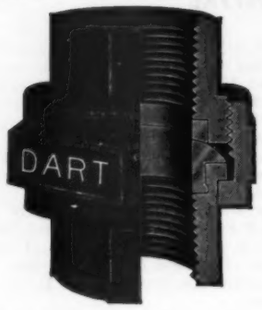
In the Fitts Pool, Pontotoc County, where 60 locations, rigs and wells drilling are listed, and wherein 47 oil wells have a tubing potential production of 167,458 bbls. per day, or an average of 3,563 bbls. per day, one well was completed and two others showing for big wells.

W. A. Delaney and others' No. 3 Har-

DART UNIONS and FLANGES

Two Bronze Seats

May we send you sample to try on your most troublesome line? It is absolutely free. Write today for catalogue "O."



E. M. Dart Mfg. Co., Providence, R. I.
The Fairbanks Co.,—Distributors

AXELSON

PUMPS &

SUCKER RODS

SAVE YOU MONEY

ON EVERY

PUMPING WELL

AXELSON MANUFACTURING CO.
P. O. Box 710, Vernon Station, Los Angeles, Calif.
St. Louis 50 Church St., New York Tulsa
Mid-Continent and Eastern Distributor: Frick-Reid Supply Corp.
Rocky Mountain Distributor: Great Northern Tool & Supply Co.

Wildcat Operations in Oklahoma

(Continued from Preceding Page)

Top Arbuckle 5,085 ft.; T.D. 5,116 ft.; P.B. to 4,550 ft.; set 6-in. 4,489 ft.; drilled plug and got wtr.; P.B. to 4,510 ft.; H. F.W.

PITTSBURG COUNTY

McAllister Pet. Corp. et al's No. 1 Chunn, C SE NW Sec. 29-4-14.
T.D. 1,530 ft.; pipe collapsed; S.D.

P. H. Gray et al's No. 1 Lee, NW SE Sec. 12-5-12.
S.D. 1,050 ft.

PONTOTOC COUNTY

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-3-6.
S.D. 2,920 ft.

Charles E. Carter's No. 1 Wood, NW SW SE Sec. 5-4-3.
S.D. 2,070 ft.

Crabtree's No. 1 Chandler, NE SE SW Sec. 4-5-6.
Drlg. 110 ft.

Crabb-Craw Oil Co.'s No. 1-A Breco, SE NE SW Sec. 3-4-6.
Sand 1,106-18 ft.; pumped 10 bbls. 24 hrs.

C. W. James et al's No. 1 Neal, C NW SE SW Sec. 4-5-3.
Running 6-in. csg.; T.D. 3,705 ft.

Mudge O. & G. Co.'s No. 1 Clampett, SW NW NW Sec. 10-2-6.
Drlg. 915 ft.

Paramount Oil Co.'s No. 1 Graham, SW SE SW Sec. 13-1-7.
Drlg. 3,160 ft.

Gillett & Kroeger's No. 1 Robbins, NE SE Sec. 31-1-4.
Machine.

Gillette & Kroeger's No. 1 Duver, NW SE Sec. 36-1n-6e.
S.D. 1,162 ft.

H. M. Marcum's No. 1 Magnuson, SW SE SE Sec. 23-2-7.
6-in. csg. 1,752 ft.; T.D. 1,810 ft.; C.O.

J. D. Sledge and Jack Lynch's No. 1-A (twin) Thompson, SW NE SW Sec. 1-1n-7e.
Bromide at 4,503 ft.; first sand at 4,585-4,605 ft.; broken sand 4,605-36 ft.; second sand at 4,647-56 ft.; hole filled 500 ft. with wtr.; P.B. to 4,560 ft.; shot with 165 qts. at 4,300-80 ft.; csg. collapsed; swaging pipe; will produce from Viola and Hunton.

Southern Oil Co.'s No. 1 Walker, NW NW SW Sec. 11-4-6.
Sand 785-816 ft.; 8,000,000 ft. of gas; S.D. 820 ft.

POTTAWATOMIE COUNTY

Howard Sherman et al's No. 1 Wingo, NE NW SE Sec. 32-10-5.
Cellar and pits.

SEMINOLE COUNTY

Ray Dorris and J. T. Hall's No. 1 Dorris, SE SE SW Sec. 31-10-7.
S.D. 500 ft.

Crabtree Drlg. Co.'s No. 1 Chandler, NE SE SW Sec. 4-5-6.
S.D. 110 ft.

Verser & Clay et al's No. 1 Thomas, NE SE NW Sec. 1-6-6.
S.D. at 2,802 ft.

Wofford Drlg. Co. et al's No. 1 Abbott, NE cor. Sec. 33-8-7.
Drlg. 1,910 ft.

Wofford Drlg. Co. et al's No. 1 Thomas, NW SE Sec. 8-6-7.
Drlg. 3,725 ft.

TEXAS COUNTY (PANHANDLE)

Ben F. Ash et al's No. 1 Guymon Townsite, C NE SE Sec. 30-3n-15e; (Cimarron Meridian).
T.D. 2,430 ft.; fishing for drill pipe.

WASHITA COUNTY

Okla.-Midwestern Oil Co.'s No. 1 Dock, SW cor. Sec. 21-8-13w.
T.D. 2,430 ft.; lost tools in hole; rig rebuilt; S.D.

Anadarko Basin Oil Co.'s No. 1 Wolf, NE SW Sec. 23-9-17w.
Rigged up and S.D.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire et al's No. 1 Rowland, NW NE NE Sec. 16-3-10.
H.F.W. 3,344 ft.; test shallow sand.

Malernee et al's No. 1 D. O. K. Land Co., C SE SE Sec. 36-1s-13.
S.D. 3,115 ft.

BRYAN COUNTY

C. B. Welch's No. 1 Collins, NE NE Sec. 19-8s-8e.
Machine.

COMANCHE COUNTY

H. W. Baker's No. 1 Miller, SE SW SE NE Sec. 22-2-13w.
Drlg. 115 ft.

Oscar Jones' No. 1-A Sheetz, NE SW Sec. 26-3-10w.
Machine.

Henry Rosenthal et al's No. 1 Au-che-re-ah, NW NW NW Sec. 5-1n-9w.
Sand 1,479-93 ft.; bailed dry; filled 300 ft. with fluid in 24 hrs.

F. F. Stevens' No. 1 Green, SE SW Sec. 2-1-13w.
S.D. 1,315 ft.

Heiden & Taylor's No. 2 Crutcher, C NE Sec. 11-1n-12w.
S.D. at 860 ft.

JACKSON COUNTY

Associated Oil Co.'s No. 1 Harrell, NE SW Sec. 13-1-21w.
Drlg. 770 ft.

Burk Royalty Co.'s No. 1 Gore, SE NW SE Sec. 3-1s-20w.
S.D. at 1,909 ft.

A. H. Emenheiser's No. 1 Morrell, SE SW SE Sec. 17-3n-21w.
Drlg. at 150 ft.

Golden & Cochran's No. 1 Duncan, NE cor. Sec. 34-2n-21w.
13⅜-in. csg. set at 62 ft.; drlg. 350 ft.

Gypsy Oil Co.'s No. 1 Stokes, SE NW SW Sec. 11-1-20w.
Lime 1,709-11 ft.; T.D. 1,722 ft.; S.D.

Jack Kilgore's No. 1 Wooldridge, SW SW NE Sec. 15-3n-21w.
Machine.

Palo Duro Oil Co.'s No. 1 Ealum, SW SW SE Sec. 16-2-21w.
T.D. 780 ft.

Petroleum Prod. Co.'s No. 1 Cole, SW SE Sec. 34-2-20w.
Granite wash 1,454-61 ft.; swbd. 24 bbls. in. 24 hrs.

Selby Oil Co.'s No. 1 Hold, SE SW Sec. 15-2-20w.
Drlg. 600 ft.

Dick Schleig's No. 1 Sue Richardson, SW NW SE Sec. 30-1n-19w.
Location.

D. Scheig's No. 1 James, NE cor. Sec. 23-1-20w.
Drlg. 1,830 ft.

D. Scheig et al's No. 1 Cole, NE SE SE Sec. 5-1n-20w.
T.D. 1,020 ft.; waiting for drlg. line.

Dick Scheig et al's No. 1 Cole, NE SE SE Sec. 5-1n-20w.
Drlg. 765 ft.

Whatley & Whatley's No. 1 Holt, NW SW SE Sec. 20-1n-20w.
Drlg. 610 ft.

JOHNSTON COUNTY

W. A. Delaney et al's No. 1 Diamond, NW NE SE Sec. 5-1s-8.
Drlg. 2,100 ft.

MARSHALL COUNTY

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e.
Drlg. 5,133 ft.

McCURTAIN COUNTY

J. V. Scrivener et al's No. 1, NE SW SW Sec. 24-6s-21.
Machine.

MURRAY COUNTY

Equitable O. & G. Co.'s No. 1 Baer, SW NW NW Sec. 21-1s-3e.
Rigged up standard machine.

Equitable O. & G. Co.'s No. 1 Scott, CSL N½ NW SW Sec. 15-1s-3.
Drlg. 1,369 ft.; H.F.W.

Manahan et al's No. 1 Ward, NE SE NW Sec. 18-1s-3; (Wilcox sand test).
Viola lime 650 ft.; drlg. 1,046 ft.

C. P. Williams et al's No. 1 Singleterry, SE SW NW Sec. 25-2s-3e.
T.D. 743 ft.; S.D.

STEPHENS COUNTY

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w.
Rig down, drill pipe in hole; T.D. 2,220 ft.

Wm. Angle's No. 1 Calloway, SE NE NE Sec. 17-1n-8w.
10-in. pipe set 53 ft.

den, C NW SW NE Section 30-2-7, flowed 419 bbls. through casing and tubing the first 30 minutes. Bromide was topped at 4,130 feet, first sand at 4,240-55 feet, second sand at 4,310-51 feet, and McLish lime at 4,351-59 feet, total depth. It made 719 bbls. in one hour through casing and then 280 bbls. in an hour through tubing. The gas production was at the rate of 5,500,000 feet per day. Cellar and pits are dug for No. 5 Harden, C SW NW NW Section 30.

Stanolind Oil & Gas Co. and others completed No. 6 Harden, NW SW SW Section 30-2-7, which flowed 693 bbls. of oil the first two hours through casing and tubing. This well had Bromide at 3,970 feet, first Wilcox at 4,075 feet, and second Wilcox at 4,140 feet, and McLish at 4,182-4,202 feet. Same operators' No. 7 Harden (a twin), SE NW SW Section 30-2-7, had Bromide at 3,950 feet and McLish at 4,185 feet. total depth 4,206 feet. It flowed 383 bbls. the first hour and 358 bbls. the second hour through casing and tubing.

Sledge & Lynch's No. 1-A Thompson, SW NE SW Section 1-1-7, will be produced from the Hunton and Viola lime. It had been drilled to 4,569 feet where it found only water, and plugged back. Hunton lies at 3,833-4,109 feet and Viola at 4,241 feet. Paramount Oil Co.'s test in SW SE SW Section 13-1-7, had Viola lime at 2,865 feet and was drilling at 3,187 feet in hard dry formation.

E. W. Whitney and others will test the deep formations in an old well in C SE SE NE Section 10-2-8, which was abandoned at 1,814 feet in April, 1926, and deepened to 2,950 feet and abandoned in November, 1933. The crew was pulling the 5-inch pipe.

Anderson & Kerr have cellar and pits ready for No. 1 Newburn, NW SW NE Section 34-5-3, Pontotoc County. Deep Rock Oil & Refining Co. had cellar and pits dug for No. 3 Harden, NE SE NE Section 30-2-7.

Creek County

Recent Creek County completions include Bay State Oil Co.'s No. 4 Lasley, NE SE NW Section 3-17-8, sand at 1,366-1,403 feet, 30 bbls. in 24 hours after a shot; Bay State Oil Co.'s No. 5 Lasley, SE SW NW Section 3-17-8, sand at 1,403-31 feet, shot, initial production 75 bbls.; Bay State Oil Co.'s No. 4 Harmon, C E half NE NE Section 9-17-8, sand at 1,408-46 feet, shot, initial production 250 bbls.

New work included: Krasne Drilling's No. 1-A Greer, C E half NE NE Section 3-18-7, rigging up machine; F. O. Akin's No. 4 King, Section 35-18-8, moving in machine; Bert Swift's No. 2 Grimes, C NW NE Section 18-18-10, spud; Johnson Oil & Refining's No. 1 Mann, SE NW SE Section 32-19-9, 5 inches at 2,440 feet, Dutcher 2,602-18 feet, dry, Mississippi lime 2,640 feet, drilling at 2,820 feet.

Okmulgee County

Thompson and others' No. 3 Douglass, CNL NW SE Section 22-12-13, Okmulgee County, had sand at 855-910 feet. It is a 100,000-foot gasser, completed.

W. B. Pine's No. 5 Smith, SE SW NE Section 27-14-13, dry and abandoned at 2,025 feet.

In Southern Fields

Westheimer & Daube completed No. 3 Watson, SW NW NW Section 24-2-10w, Comanche County, a 12-bbl. pumper in granite wash at 1,232-39 feet.

Green and Newland's No. 1 Trope, 150 feet south and 1,000 feet east of C Section 32-2n-10w, was dry and abandoned at 472 feet in red beds.

Farlyn Oil Co.'s No. 28 Seay, 1,421 feet south and 1,530 feet east of C Section 3-7s-5w, Jefferson County, is a 25-bbl. pumper, completed in sand at 1,184-1,233 feet, total depth 1,267 feet.

Roy A. Godfrey completed a 7-bbl. pumper in No. 9 Burge, SE SW SE Section 25-1s-5e, Marshall County, in sand from 520-27 feet.

F. H. E. Oil Co.'s No. 4 Snell, SW NW NW Section 31-7s-6e, Marshall County, started at 20 bbls. initially and pumped 12 bbls. the second day from sand at 507-09 feet. It was completed.

Bridwell Oil Co.'s No. 3 Seay, SW NW NE Section 30-6s-5w, Jefferson County, was completed in sand at 1,518-22 feet and broken sand at 1,522-30 feet. It is a 7-bbl. pumper.

Howard Chamberlain and others completed a 28-bbl. well in No. 1-A Johnson & McGill, SW SE SW Section 17-4s-2w, Carter County, in sand at 1,450-59 feet and broken sand at 1,459-1,520 feet.

Bishop Oil Co. abandoned No. 1-B Parker, NE NE SE Section 11-2s-8w, Stephens County, at 2,222 feet; sand at 1,845-48 feet had a showing of oil.

Louis Sykes' No. 6 Franklin, SE SE SE Section 18-1s-8w, was completed as an 80-bbl. pumper at 1,855-65 feet.

W. A. Critchlow had a 15,000,000-foot gas production in No. 1 Mecklinburg, NW SE SE Section 6-3n-6w, Garvin County, the gas coming from sand at 1,042-1,106 feet.

Petroleum Producers Co.'s No. 1 Cole, SW SW SE Section 34-2n-20w, had granite wash at 1,454-61 feet, and swabbed 24 bbls. in 24 hours.

Gypsy Oil Co.'s No. 3 Edwards, SE SE SE Section 3-1n-20w, had a saturated lime at 1,663-67 feet. Two-inch tubing was run and the well flowed 60 bbls. in 12 hours.

First reports in southern fields included Equitable Oil & Gas Co.'s No. 1 Fergus, NE NE SW Section 36-1s-3e, Murray County, cellar and pits; J. G. Buell and others' No. 1 Kizziar, SE SE NE Section 2-2n-22w, Jackson County, a wildcat, machine on location; Morgan Petroleum Co.'s No. 1 Calloway, SE NE NE Section 17-1n-8w, Stephens County, set 10-inch pipe at 58 feet; Clark & Cowden's No. 4 Payne, SE cor. SW SE SW Section 2-1n-5w, Stephens County, drilling at 41 feet; Trio Oil Co.'s No. 1 Gilbert, NW SW SW Section 25-8s-7e, Marshall County, drilling at 70 feet; Farlyn Oil Co.'s No. 29 Seay, 1,480 feet south and 1,530 feet east of C Section 3-7s-5w, Jefferson County, set 6⅝-inch casing at 1,040 feet; Farlyn Oil Co.'s No. 30 Seay, 1,121 feet south and 880 feet east of C Section 3-7s-5w, Jefferson County, a location; Headington and others' No. 1 Snell, NW cor. NE SE Section 36-7s-5e, Marshall County, machine; Gypsy Oil Co.'s No. 1 J. James, SW SE SE Section 30-6s-6w, Jefferson County, location; E. W. Stevenson's No. 3 fee, NE cor. SW SW SW Section 3-2s-5w, Stephens County, 6⅝-in casing set on top of gas sand at 845-57 feet, oil sand at 857-60 feet; Skelly Oil Co.'s No. 1 fee No. 199, SE SW NE Section 17-2s-2w, Carter County, pits; Louis Sikes' No. 5 Mulkey, NE cor. NE SE NE Section 16-1s-8w, Stephens County, building rig; Triangle Oil Co.'s No. 1 Fox, 660 feet from south and 990 feet from west line of NW Section 11-3n-20w, Jackson County, machine in for a wildcat test.

EQUIPMENT INDUSTRY BUDGET

WASHINGTON, D. C., Mar. 4.—The National Industrial Recovery Board has announced that the code authority for the American Petroleum Equipment Industry and Trade has made application for approval of its $68,095.23 budget, and the basis of assessment, for the period from January 1, 1935, to December 31, 1935. The basis of contribution is one-tenth of 1 per cent of gross sales per month, with a minimum of $2 per month and a maximum of $1,000 per month. Suggestions or objections to the proposed budget must be filed with Deputy Administrator Neal W. Foster, room 539, Investment Building, Washington, D. C., before March 13, 1935.

NORTH TEXAS ASSOCIATION

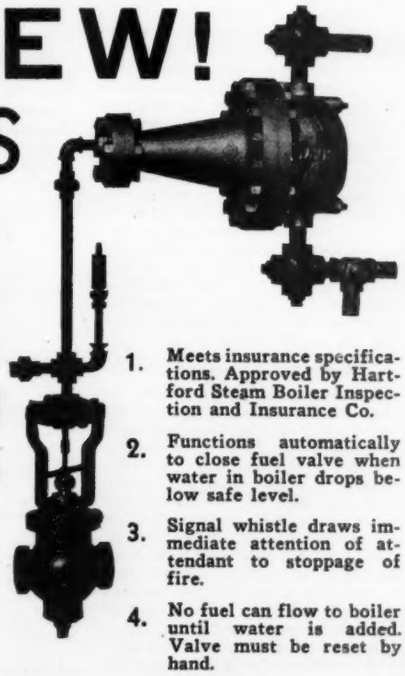
WICHITA FALLS, Tex., Mar. 4.—The North Texas Oil & Gas Association held its fifth annual banquet in Wichita Falls on the evening of March 2, which was attended by operators from North Texas and Southern Oklahoma. Landon H. Cullum, Wichita Falls, is the newly elected president of the association.

E. J. ANDERSON DIES

Earl J. Anderson, 49 years old, drilling contractor of Fort Worth, Tex., died of a heart attack in Tulsa last week.

Fitts Field
And
Coal County
Oil
Leases
Royalties
Production
Drilling Blocks
Appraisals
Charles J. Hagerling
Aldridge Hotel
Ada, Oklahoma
or
719-721 Petroleum Bldg.
Oklahoma City

NEW!
DAVIS
Automatic
Low Water
Fuel Cutout
for Gas Fired
Field Boilers
• • •



1. Meets insurance specifications. Approved by Hartford Steam Boiler Inspection and Insurance Co.
2. Functions automatically to close fuel valve when water in boiler drops below safe level.
3. Signal whistle draws immediate attention of attendant to stoppage of fire.
4. No fuel can flow to boiler until water is added. Valve must be reset by hand.
5. Standard sizes suitable for boiler pressures up to 400 pounds.
6. Low cost in comparison with value of life and equipment protected.

Write for descriptive literature.

DAVIS REGULATOR COMPANY
2543 S. Washtenaw Avenue, Chicago, Illinois.

Unsettled Situation in California Field Caused by Overproducers and Weak Gasoline Market

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Mar. 4.—Conditions are rather unsettled in California, due primarily to violation of the curtailment program and a very definite weakening in the retail gasoline structure. Federal officials have proceeded against the principal violators of curtailment and the Pacific Coast Petroleum Agency has taken a definite stand with respect to violation of the agency agreement. In addition to production and sale of gasoline produced from hot crude, the situation has been complicated by resellers who have consistently maintained that they should be allowed to retail gasoline below established prices. As a result of this, a large number of service station operators will find themselves sitting out on a limb if the agency carries out its intention of refusing refiners permission to make any further deliveries of gasoline to resellers who persist in cutting prices.

The crude oil curtailment program is so closely connected with the marketing situation that a violation of basic principles in one is instantly reflected in the other. Crude oil prices have remained stable for more than a year as the price schedules posted on September 6, 1933, are still in effect. The only change in crude oil prices during 1934 was the posting of price schedules for crude oil in the Edison and Mountain View Fields by Standard Oil Co. and General Petroleum. Under ordinary circumstances the crude oil structure should have shown an improvement in view of the improved marketing conditions which have materialized since formation of the marketing agency, but there has not been sufficient grounds to justify increased prices for the raw material in view of the low price received for fuel oil shipped to the East Coast during 1934. It is logical to assume, however, that crude oil quotations will be revised upward early this summer provided that the marketing agreement is extended or some other co-operative stabilizing movement formulated. Interrogation of several independent refiners and two of the majors has failed to settle the often asked query as to whether the agency agreement will be extended after June 30, the expiration date.

Marketing Agreement

It has become evident that, despite the fact that the marketing agreement has been productive of good results from a financial standpoint, there is no unanimity of opinion with regard to its extension beyond the stipulated time limit. Unfortunately, some refiners and marketers are not guided entirely in their judgment by the profit and loss account which reflects the result of their business during the period in question. One refiner, who has been fortunate enough to increase his controlled production during the past several months, is frank enough to admit that with this new production he might make more money by overproducing and chiseling the price of gasoline. This is based on the supposition that major companies would continue to hold the sacks, as most of them have done in the past, and permit him to cut prices. Although it looks rather dubious whether the marketing agreement will be extended beyond the present dead line, one can not discount the probability that sane judgment may eventually prevail, because after all we have gone a long way up the hill since June, 1934, and with the top now in sight it would prove extremely poor business acumen that would dictate a return to former cut-throat practices.

Issues a Warning

W. S. Scully, California representative of the Petroleum Administrative Board, has issued an edict that no signatory to the Pacific Coast Petroleum Agency agreement will henceforth be permitted to make deliveries of gasoline to any service station not continuously posting and maintaining the authorized retail service station price. This order is very timely because of the chiseling tactics of some of the signatories to the agreement, who tacitly admit that they have been forced to violate the agreement in order to hold their accounts. This action has been due to the dumping of hot gasoline and motor fuel by refiners who are not members of the agency.

The marketing situation has been growing steadily worse and many illegitimate practices are being revived. The situation can be summed up in a few words because the future stability of the oil industry on the Pacific Coast depends basically upon whether crude oil producers and refiners, with millions of dollars invested, shall sit in the saddle or whether the reseller shall dictate the price at which commodities shall be sold. Retail prices in California have been disrupted on numerous occasions by a relatively small group of resellers who have consistently slashed prices when their stocks became depleted in order that they might load up again at distress prices resulting from the ensuing price war.

Revision Necessary

One of the most important problems confronting the Central Committee of California Oil Producers, the official curtailment committee, is the necessity of formulating a plan to differentiate between the various grades of crude oil as far as allowable daily production is concerned. This problem has been under consideration for a long time, but up to the present no definite solution has been found. Primarily, the problem is to find some method of allocation that will prove equitable to both producers of light refining crude and nonrefinable crude oil. It has become evident during the past several months that producers of heavy crude oil should be given a higher allowable as the demand for fuel oil has shown a substantial increase coincident with an improved price for fuel oil.

The necessity of increasing the allowable production of heavy crude oil has been evident for some time because, with refinery crude oil stocks pegged and refinery operations regulated, some operators are having difficulty in securing sufficient fuel oil to meet normal demands. It is not possible to utilize light refining crude to produce refinery residuum because this backs up into the storage of either tops or gasoline with the result that the stocks of these products, which are supposed to be reduced to so-called economic levels would show an increase instead of a projected decrease. In addition to this there is the necessity of affording operators in heavy oil fields an opportunity of participating in the demand for heavy unrefinable crude oil. The serious consideration being given to this condition may result in the adoption of an improved formula within the next few months provided that the demand for heavy fuel oil holds up. There was very little need for this adjustment during 1934 as shipments to the Atlantic seaboard for domestic consumption was an abnormal condition, but now that this business has gone overboard heavy oil producers are entitled to a better break if the normal demand for fuel oil holds up.

Playa Del Rey

The Playa Del Rey Field of Los Angeles basin came to life with the completion of two exceptionally good wells. The Union Oil Co. started off the week by completing No. 7 Vidor, flowing 1,894 bbls. of clean 23.2 gravity oil and 600,000 feet of natural gas per day from 6,217 feet. This new well was spudded in January 5, 1935, and completed in less than seven weeks. The Union immediately resumed drilling operations on No. 8 Vidor and started erecting a new rig for No. 8 on the Del Rey lease. The Vidor property of the Union immediately adjoins acreage undergoing development in the extreme eastern end of the field where Charles W. Fourl finished a large well late last year.

D. D. Dunlap climaxed operations during the current week by completing his No. 1 Palisades, and this new well greatly enhances the potentiality of the Palisades extension because it was brought in flowing 4,400 bbls. of clean 23.1 gravity oil per day from 6,572 feet. A short time after completion, pressure began building up and the crew opened it up for a brief period and it flowed at the rate of 5,850 bbls. per day. This new producer has a 6⅝-inch water string landed and cemented at 6,225 feet, and with 184 feet of penetration in the oil sand is expected to reach a high of about 6,000 bbls. per day during the forthcoming flow test. This well showed a lot more kick than Fourl's initial completion and may even exceed the estimated maximum flow. The Big Ben's No. 1 Del Rey and Charles Fourl's No. 3 Del Rey showed such a deviation from the vertical that both are being redrilled. The former was off about 1,200 feet and the latter 1,800 feet with the result that the actual footage did not represent the actual vertical depth. The Mammoth Oil Co. has encountered the top of the Nodular shale at 6,099 feet and preparations are being made to land a water string within the next few days. D. W. Elliott has also picked up the Nodular shale and should have his well in shape for an early production test. The Bel-Mar Oil Co. and the Brite-Lube Co. are making preparations to begin drilling new wells shortly.

Mountain View

The Union Oil Co. revealed the advantages of deviational drilling this week by whipstocking No. 3 Kernco down into the productive zone in the Mountain View Field of Kern County and in doing so changed a dud into an asset. This well, located north of previous completions on this lease, was drilled as straight as possible and failed to find production. The company decided to whipstock the hole back under its lease and by careful work intercepted the oil zone and brought the well in flowing 3,660 bbls. of clean 29.4 gravity oil per day from 5,675 feet. In addition to the oil produced, the well is making 994,000 feet of natural gas per day. The transformation of this dry hole into a producing well clearly indicates the advantages of deviational drilling from a constructive standpoint. No. 4 Kernco, which like No. 3 failed to encounter the oil sand because of its location on the structure, will be whipstocked back under the oil zone and should be finished as a good well.

The Union Oil Co. saved a considerable sum by whipstocking No. 3 Kernco back under the oil sand because it eliminated the necessity of skidding the rig and building new rig foundations. In some fields this does not represent much of an investment, but into other areas it runs into a considerable sum. On the Wible lease the Union picked up the Hogan zone in No. 3 at 5,550 feet and preparations are under way to make an early production test. The Star Oil Co. got a dry hole in its No. 1 Bakersfield Star, which was drilled on the Bakersfield farm in Section 10-30-28, and drilling operations were suspended at 5,050 feet. Top of the Santa Margarita was encountered at 4,958 feet and the Wharton zone was barren at 5,050 feet. This well appears to be located too far north especially since the Union's No. 3 Kernco tends to indicate that the struc-

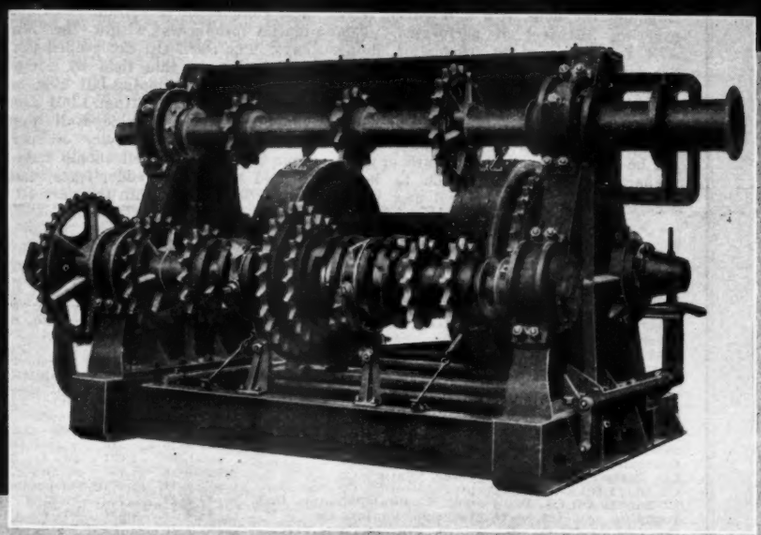
TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	February 17		February 10			
Intercoastal-Domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	.....	.....	.....	.....	.....	2,177,341
Diesel and gas oil	.....	.....	156,453	22,350	391,997	311,838
Gasoline	126,937	18,134	196,807	28,115	929,887	670,759
Kerosene	.....	.....	.....	.....	78,460	258,654
Foreign exports—						
Crude oil	237,727	33,961	90,064	12,866	1,168,621	858,579
Fuel oil	361,020	51,574	464,843	66,406	1,889,930	1,286,083
Diesel and gas oil	.....	.....	.....	.....	294,531	533,849
Gasoline	91,509	13,073	112,417	16,060	433,255	534,952
Kerosene	39,950	5,707	.....	.....	190,511	177,403
Other unfinished oil	2,547	364	34,550	4,936	37,097	.....
Coastwise-domestic—						
Crude oil	347,894	49,699	119,572	17,082	1,047,380	324,220
Fuel oil	126,067	17,867	226,118	32,303	1,556,031	1,667,931
Diesel and gas oil	55,347	7,907	14,785	2,026	138,167	94,406
Gasoline	163,876	23,411	334,532	47,790	1,172,519	1,616,769
Kerosene	.....	.....	1,882	269	25,596	16,886

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

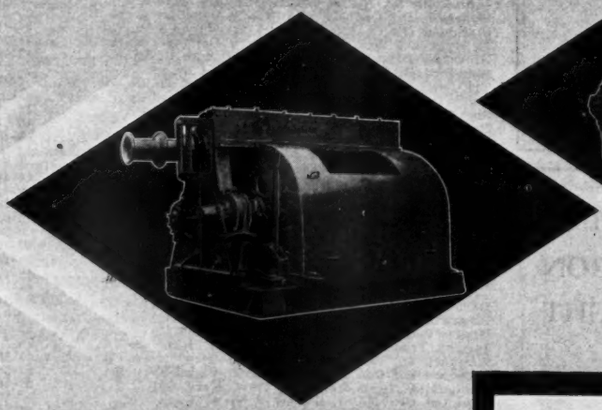
Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	78,075	313,695
Gasoline	.....	.....	.....	.....	.....	72,625
Kerosene	79,205	11,315	.....	.....	79,205	80,925
Asphalt	71,325	10,190	.....	.....	71,325	.....
Lubricants	.....	.....	.....	.....	4,005	8,310
Foreign exports—						
Crude oil	187,861	26,837	.....	.....	357,485	291,525
Fuel oil	78,347	11,192	20,183	2,883	204,009	141,931
Diesel and gas oil	.....	.....	.....	.....	74,557	253,738
Gasoline	181,822	25,973	.....	.....	475,317	565,907
Kerosene	35,527	5,075	.....	.....	77,666	131,662
Lubricants	2,703	386	.....	.....	22,116	21,460
Coastwise-domestic—						
Fuel oil	73,921	10,560	87,316	12,474	469,945	359,784
Diesel and gas oil	.....	.....	.....	.....	10,490	49,287
Gasoline	16,127	2,304	94,121	13,446	448,483	371,582
Kerosene	.....	.....	3,880	554	3,880	19,928

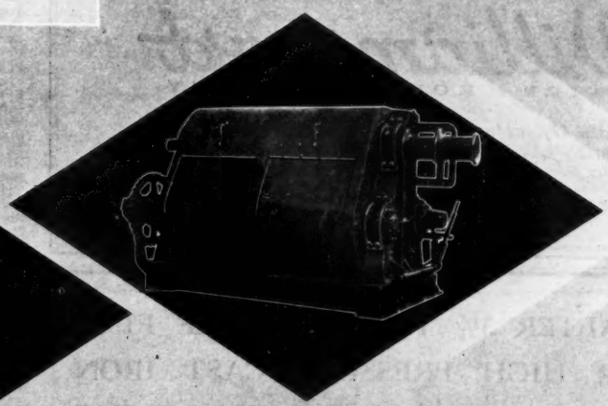
LUCEY MULTI-SPEED UNITARY DRAWWORKS



Here is something really new and advanced in Drawworks design—a fully self-contained unit wherein *six drum speeds, three rotary drive sprocket speeds* and *two cathead speeds* are available, and under instant control of the driller. Clutches are so arranged that it is *absolutely impossible to engage more than one speed at a time*, and clutch shifter rigging is absolutely fool-proof. Operators of electric motor or internal combustion engine-powered rotary rigs will immediately recognize the advantages of this wide selection of drum and rotary speeds.

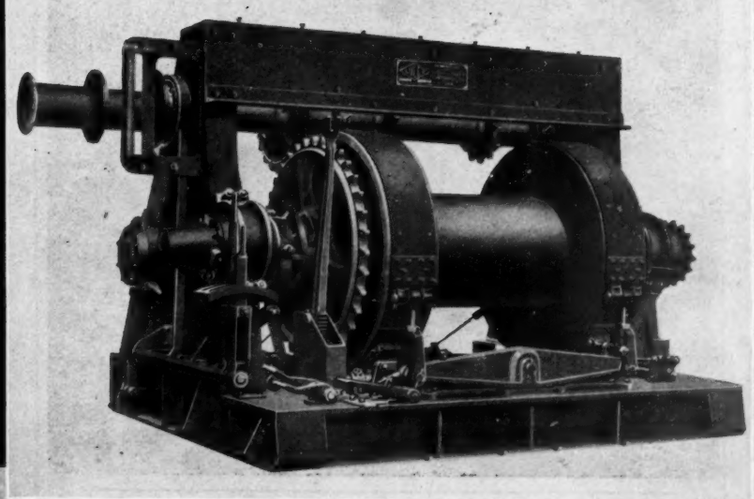
This hoist includes also all other approved features in drawworks design, including extra-large spooling drum, self-aligning American Roller Bearing mountings on all shafts, Lucey free-expanding brake flanges, Lucey compound self-equalizing brake, improved unitary assembly and water cooled brake flanges. Write for descriptive bulletin No. 142.





SPECIFICATIONS

Length of base parallel to shafts	9'—7½"
Width of base	8'—0"
Height overall	7'—5½"
Weight complete with chain guards	32,000 Lbs.
Weight complete less chain guards	30,000 Lbs.
Diameter Drum Shaft	9"
Diameter Lineshaft	8"
Diameter Jack Shaft	8"
Diameter spooling drum	26"
Length spooling drum	42"
Diameter brake flange	50"
Width brake flange	10"



PRODUCTS LUCEY CORPORATION

LUCEY PRODUCTS CORPORATION

TULSA, OKLAHOMA HOUSTON, TEXAS

LUCEY EXPORT CORPORATION
NEW YORK CITY

For More Uniform Service ··· Use ···

WILLIAMSPORT

WIRE LINES

The oil industry has discovered that we are making a special line that is giving a much superior service than all previous lines. This is new and exclusive with Williamsport.

Ask about it.

Williamsport
WIRE ROPE COMPANY

Main Office and Works: Williamsport, Pa.

Branch Sales Offices: 122 S. Michigan Ave., Chicago, Ill.
Oil Country Sales Offices: Williamsport Bldg., Fourth and Midland Valley Tracks, Tulsa, Okla.; 1516 Chestnut Street, Houston, Texas. Mid-Continent Supply Co., Distributors in Texas, Louisiana and Arkansas.

TESTS AFTER 3½ YEARS SERVICE FIND PIONEER HIGH PRESSURE CAST IRON GAS TRANSMISSION LINE BOTTLE-TIGHT

Widely discussed high pressure (400 pounds) natural gas transmission line composed of 6-inch Mono-Cast Doublex Simplex Cast Iron Pipe, installed in 1931 by Memphis Natural Gas Company, was recently inspected and reported by D. C. Shaffer, V-P. and Gen. Mgr., to be "holding up fine—no leaks and absolutely perfect in every way." For literature on this pipe, write American Cast Iron Pipe Company, Birmingham, Alabama.

ture swings more to the west than has been expected. The Barnsdall Oil Co. has reached a depth of 7,700 feet in No. 1 Young, a deep test which the company is drilling in Section 31-30-29, but nothing out of the ordinary has yet been encountered.

Edison

The Gilco Oil Co., Inc., successfully recompleted No. 1 Stuart-Gerard after cleaning out the hole to 2,163 feet and finishing the hole with a 6⅝-inch liner carrying 223 feet of perforated. This well was returned to production doing 288 bbls. of relatively clean 18.4 gravity oil per day on a compressor. The A. T. Jergins interests have assumed an aggressive attitude in this field, and while some of the 10 new locations staked will not be drilled for another month or two, preparations are being made to begin drilling operations on several new wells. Several new wells are nearing completion in this field but it may be another 15 days before they begin showing up in tangible form. The Edison Field of Kern County appears to consist of several small productive areas in contrast with the usual field, which shows some degree of regularity.

Three new wells were chalked up in the Mount Poso Field this week and a check of development indicates the probable completion of several additional potential producers within the next 15 days. The Shell Oil Co. headed the completion list in this field by completing No. 15 Vedder pumping 901 bbls. of 15.7 gravity oil per day from 1,991 feet and finishing No. 7 Vedder-Rall pumping 460 bbls. of 15.4 gravity oil per day from 1,968 feet. Shell should have Nos. 10 and 19 on the Vedder lease ready for production tests within the next 10 days.

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
General Pet. Co., No. 14 Capitan, Santa Barbara Co.	32- 5-30	....	rigged up
Shell Oil Co., No. 2 Capitan, Santa Barbara Co.	32- 5-30	3,199	pump 95 b.d.
Shell Oil Co., No. 4 Capitan, Santa Barbara Co.	5- 4-30	1,091	sd. sh. drlg.
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	2,980	cmtd. 2,572
York-Smullin, No. 2 Lompoc, Santa Barbara Co.	33- 8-34	2,850	rig to pump
Advance Pet. Co., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,671	hd. sh. drlg.
Barnsdall-Rio Grande, No. 10-88 Elwood, S. Barbara Co.	tideland	1,421	sd. sh. drlg.
Barnsdall-Rio Grande, No. 2 Elwood, Santa Barbara Co.	15- 4-29	3,490	will deepen
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	3,767	cmtd. 3,677
Shell Oil Co., No. 1 Goleta, Santa Barbara Co.	20- 4-28	6,508	cmtd.
Standard Oil Co., No. 2 Goleta, Santa Barbara Co.	17- 4-28	4,850	gas—shut in
Ortega Oil Co., No. 1 Summerland, Santa Barbara Co.	16- 4-26	4,583	will P.B.
General Pet. Co., No. 4 Rincon, Ventura Co.	tideland	1,071	sd. sh. drlg.
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	7,687	o. and g. show
Oil Ridge Oil Co., No. 1 Ventura, Ventura Co.	1- 4-19	1,573	deepening
El Rancho Oil Co., No. 1 South Mountain, Ventura Co.	9- 3-19	....	rigging up
Texas Co., No. 128 South Mountain, Ventura Co.	4- 3-19	5,537	sd. sh. drlg.
Bolsa Chica Oil Co., No. 2 Piru, Ventura Co.	4- 4-18	701	hd. sh. drlg.
Dawson Oil Co., No. 1 Simi, Ventura Co.	5- 2-17	1,911	wet—idle
Continental Oil Co., No. 1 Ojai, Ventura Co.	12- 4-23	1,673	sd. sh. drlg.
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	7,110	recmtd. 6856
Standard Oil Co., No. 1 Lost Hills, Kern Co.	2-26-20	2,092	gr. sh. drlg.
General Pet., No. 1 South Belridge, Kern Co.	30-28-21	11,377	milling
Union Oil Co., No. 18 North Belridge, Kern Co.	36-27-20	8,523	fish D. P.
Standard Oil Co., No. 1-A North Belridge, Kern Co.	36-27-20	7,900	sd. sh. drlg.
Standard Oil Co., No. 2 North Belridge, Kern Co.	36-27-20	5,671	cleaning out
Belridge Oil Co., No. 32-35 North Belridge, Kern Co.	35-27-20	....	rigged up
Amerada Pet., No. 2 Blackwells Corner, Kern Co.	17-26-19	960	sd. sh. drlg.
Standard Oil Co., No. 1 Delano, Kern Co.	1-25-23	2,455	gas—shut in
Trico Oil & Gas Co., No. 1 Alpaugh, Kern Co.	3-25-23	2,525	gas well
Trico Oil & Gas Co., No. 3 Alpaugh, Kern Co.	36-24-22	2,587	cmtd.
Signal Oil & Gas Co., No. 1 McVan, Kern Co.	10-27-27	....	grade
Buckeye Union Oil Co., No. 2 McVan, Kern Co.	10-27-27	1,361	PB. 1,295
Golden Bear Oil Co., No. 1 Kern Front, Kern Co.	32-27-27	906	sd. sh. drlg.
Hancock Oil Co., No. 4 Mountain View, Kern Co.	14-30-28	5,221	O.S. drlg.
Associated Oil Co., No. 1 Mountain View, Kern Co.	3-31-29	5,501	prod. test
Star Pet. Corp., No. 1 Mountain View, Kern Co.	10-30-28	5,050	suspended
Shell Oil Co., No. 1 Mountain View, Kern Co.	32-30-29	2,491	sd. sh. drlg.
Union Oil Co., No. 4 Mountain View, Kern Co.	15-30-28	5,670	flow 3,878 b.d.
Union Oil Co., No. 5 Mountain View, Kern Co.	15-30-28	5,474	suspended
Union Oil Co., No. 6 Mountain View, Kern Co.	9-30-28	5,470	hd. sd. drlg.
Union Oil Co., No. 7 Mountain View, Kern Co.	23-30-28	5,610	P.B. 5,545
General Petroleum, No. 3 Mountain View, Kern Co.	14-30-28	3,740	sd. sh. drlg.
Texas Co., No. 4 Mountain View, Kern Co.	14-30-28	5,526	redrlg.
Texas Co., No. 5 Mountain View, Kern Co.	14-30-28	3,290	sd. sh. drlg.
Barnsdall, No. 3 Mountain View Deep, Kern Co.	31-30-29	7,675	sd. sh. drlg.
Hogan Pet., No. 6 Mountain View, Kern Co.	4-31-29	5,394	sd. sh. drlg.
Hogan Pet., No. 7 Mountain View, Kern Co.	29-30-29	2,556	sd. sh. drlg.
Jergins Trust, No. 5 Mountain View, Kern Co.	24-30-28	....	rigged up
Standard Oil Co., No. 5 Mountain View, Kern Co.	24-30-28	4,532	sd. sh. drlg.
Standard Oil Co., No. 6 Mountain View, Kern Co.	23-30-28	5,285	sd. sh. drlg.
Hoyt, Otis, No. 2 Mountain View, Kern Co.	24-30-28	5,755	redrlg. 5,457
Ohio Oil Co., No. 1 Mountain View, Kern Co.	33-30-29	5,865	sd. sh. drlg.
Mountain View Oil Co., No. 1 Mountain View, Kern Co.	25-30-28	5,276	redrlg.
Gilmore Oil Co., No. 1 Edison, Kern Co.	25-30-29	....	rig suspended
Jergins Trust, No. 5 Edison, Kern Co.	24-30-29	....	rig suspended
Jergins Trust, No. 6 Edison, Kern Co.	13-30-29	781	sd. sh. drlg.
Jergins Trust, No. 7 Edison, Kern Co.	14-30-29	....	rigging up
Consd. Crude Oil Co., No. 1 Edison, Kern Co.	17-30-29	5,567	P.B. 5,514
Ohio Oil Co., No. 1 Edison, Kern Co.	36-30-29	1,350	gr. sh. drlg.
Shell Oil Co., No. 4 Edison, Kern Co.	15-30-29	3,917	P.B. 3,776
Shell Oil Co., No. 5 Edison, Kern Co.	21-30-29	3,303	P. B. 3,126
Shell Oil Co., No. 6 Edison, Kern Co.	14-30-29	....	rig suspended
Monterey Expl. Co., No. 6 Edison, Kern Co.	15-30-29	3,538	cmtd 3,440
Monterey Expl. Co., No. 7 Edison, Kern Co.	15-30-29	3,268	P.B. 3,170
Chaulk Oil Co., No. 1 Edison, Kern Co.	5-30-29	....	rigged up
H. & B. Oil Co., No. 1 Edison, Kern Co.	6-30-30	980	sd. sh. drlg.
Seeple Oil Co., No. 1 Edison, Kern Co.	4-30-29	....	rigging up
Texas Co., No. 1 Edison, Kern Co.	4-30-29	3,877	P.B. 3,517
Mohawk Oil Co., No. 1 Edison, Kern Co.	3-30-29	....	bldg. rig
Foster, Inc., No. 1 Edison, Kern Co.	8-30-29	4,463	sd. sh. drlg.
Ethel D. Oil Co., No. 1 Edison, Kern Co.	25-30-29	....	bldg. rig
General Pet., No. 3 Edison, Kern Co.	24-30-29	1,330	cmtd.
General Pet., No. 4 Edison, Kern Co.	14-30-29	....	rigging up
Surety Oil Co., No. 1 Edison, Kern Co.	32-29-29	....	rig suspended
Petroleum Drilling Co., No. 1 Edison, Kern Co.	22-29-29	609	suspended
Signal Oil & Gas Co., No. 1 Edison, Kern Co.	31-29-30	2,258	suspended
Signal Oil & Gas Co., No. 2 Edison, Kern Co.	5-30-30	....	material
Caravel Pet., No. 1 Sivert, Kern Co.	19-30-30	1,590	suspended
Sea Cliff Oil Co., No. 1 Greenfield, Kern Co.	7-31-28	3,591	sd. sh. drlg.
Tejon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	1,582	suspended
Standard Oil Co., No. 1 Semi-Tropic, Kern Co.	8-27-22	3,193	rebldg. rig
Seeple, J. C., No. 1 Elk Hills, Kern Co.	5-30-24	3,731	suspended
Richfield Oil Co., No. 2 Devil's Den, Kern Co.	14-25-18	2,130	sd. sh. drlg.
Texas Co., No. 1 Temblor, Kern Co.	29-29-21	3,995	br. sh. drlg.
Shell Oil Co., No. 1 Buena Vista, Kern Co.	9-32-25	4,610	show gas
Reserve Oil & Gas Co., No. 1 Tejon, Kern Co.	2-10-19	3,041	gr. sh. drlg.
Badger Oil Co., No. 1 Tejon, Kern Co.	31-11-19	6,248	suspended
Russ Oil Synd., No. 1 Dos Palos, Fresno Co.	28-12-11	5,110	suspended
Wellington Oil Co., No. 1 Coalinga, Fresno Co.	14-20-13	451	sd. sh. drlg.
Union Oil Co., No. 1 Lillis-Kettleman, Fresno Co.	24-21-16	10,944	suspended
K. N. D. A., No. 56 Kettleman, Kings Co.	8-22-16	10,154	redrlg. 9,683
Standard, No. 2 Kettleman Middle, Kings Co.	29-23-19	3,550	sd. sh. drlg.
Continental Oil Co., No. 1 Kettleman-South, Kern Co.	7-23-19	3,000	sd. sh. drlg.
Farrel Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,432	hd. sh. drlg.
Willett Oil Co., No. 1 Cholame, San Luis Obispo Co.	10-25-15	3,660	cmtd.
Commonwealth Consd. Gas, No. 1 Tulare Lake, Kings Co.	21-22-20	2,490	gas well
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings Co.	21-22-20	....	rig rained out
Kettleman Pac. Oil Co., No. 1 Tulare Lake, Kings Co.	11-23-16	812	suspended
General Pet., No. 1 Devils Den, Kings Co.	20-24-18	499	sd. sh. drlg.
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	35-16-1	7,013	to set pipe
Amerada Pet., No. 1 F. L. D., San Joaquin Co.	15- 2-5	....	material
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,402	P.B. 8,085
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	2,850	gr. sd. drlg.
Texas Co., No. 1 Petrolia, Humboldt Co.	1- 5-2	4,250	sd. sh. drlg.

The Union Oil Co. completed No. 18 S. & M. pumping 754 bbls. of clean 16.3 gravity oil per day from 1,780 feet after finishing the hole with a 6⅝-inch liner, including 57 feet of perforated, and unless something unforeseen develops should have No. 19 S. & M. tanking oil within the next few days, as it is standing cemented on top of the pay at the present time. The General Petroleum should also finish a new well in this field in the near future but the Bern Oil Co. will be delayed for another two weeks as the wooden rig over No. 4 Glide burned down a few days ago.

Fruitvale

The Western Gulf Oil Co. added a new well to its list of producers in the Fruitvale Field this week by completing well No. 16 on Lease B pumping 109 bbls. of clean 21.6 gravity oil per day from 3,930 feet, and it appears quite probable that the company will finish well No. 17 on the same property within the next week. Up in the North Belridge Field, the Union Oil Co. has recovered the fish that has been delaying progress for the past several weeks, and the hole of No. 18 Belridge is being cleaned out preparatory to an early production test. This well was originally completed several months ago, but the company got into a jamb before a production test could be started. While reaming out preparatory to running a liner, the company ran into a twist-off and from that time on the well has been jinxed with a series of fishing jobs. This is the well that the boys in the field were betting would be good for 10,000 bbls. per day, but it is problematical what it will be good for when completed as the hole has been full of heavy mud for a long time.

Up in the Kettleman North Dome Field the Union Oil Co. has resumed drilling operations on No. 1 Lillis-Welsh following a suspension of a few months. Strictly speaking, the company has not yet re-entered the hole, as the crew is rearranging the equipment so that everything will be in working order before going back into the hole. This well is so full of fish that it is rather difficult to say just what the status is. Ed McAdams lost the first fish, but this was only the start, because the Union has subsequently lost several more. This hole must be so crooked that a ball dropped down at the top would not go more than a few hundred feet before hitting a whipstock or one of the several strings of drill pipe that went in but never came out.

Inglewood

It begins to look like the Inglewood Field of Los Angeles basin will assume a more important position in the production situation within the next few months as operators in this field have shown a strong inclination to undertake deeper drilling. During the current week the Pacific Western Oil Co. successfully completed No. 18 Rubel, and this new well was brought in flowing 2,097 bbls. of clean 32.2 gravity oil per day from 3,210 feet. Several new wells are scheduled to get under way in this field in the near future, as the Standard Oil Co. is building rigs for No. 73 L. A. Inv. and for Nos. 29, 30 and 31 on the Vickers lease. Just at present the Standard has three holes under way and the bit in each is making hole. The Associated Oil Co. is rigging up No. 52 Vickers preparatory to an early spud and is building a new rig for No. 60 Vickers.

Several fairly good wells were finished in the Long Beach Field of Los Angeles basin and a number of other potential producers are scheduled for early production tests. J. H. Cochran completed his No. 10 Signal, and this new well was brought in pumping 802 bbls. of exceptionally clean 27.2 gravity oil per day from 4,220 feet after the hole had been finished with a 4½-inch liner carrying 90 feet of perforated. The Goodrich Oil Co.'s No. 1 Long Beach was good for 612 bbls. per day on the beam following completion at 4,095 feet. This new well was finished with a 4¾-inch liner, including 143 feet of perforated. The Huntington Investment Co.'s No. 1 Signal started off pumping 360 bbls. per day following completion at 4,285 feet, but built up the following day to 580 bbls., the oil being exceptionally clean and testing 27.9 degrees. This new well was finished with a 4¾-inch liner carrying 92 feet of perforated. The Prosperity Oil Co.'s No. 1 Long Beach proved to be a good well upon completion at 4,295 feet, as it registered an initial daily production of 660 bbls. of very clean 28.1 gravity oil. This new well has a 75-foot liner carrying 73 feet of perforated. There was no change in drilling operations in the new eastern extension of the Montebello Field as the Universal is having a lot of trouble getting No. 2 Nutt on steady production. Unless this well shows a lot of improvement within the next several days it will in all probabilities be redrilled and depeened.

Ventura Avenue

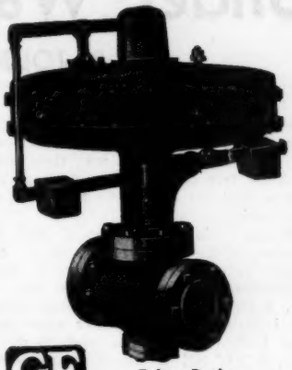
The Associated Oil Co. and the Shell each chalked up a new well in the Ventura Avenue Field this week, but the former's new well was only good for 180 bbls. of 25.4 gravity oil per day from 7,200 feet after the hole had been plugged back from 7,574 feet. The Shell's No. 84 Taylor, on the other hand, was brought in flowing 1,030 bbls. of clean 30.3 grav-

(Continued on Page 82)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Speik, F. A., No. 1 Athens, Los Angeles Co.	2- 3-14	5,190	suspended
Lennox Oil Field Co., No. 1 Hawthorne, Los Angeles Co.	4- 3-14	....	material
Macrate, A. N., No. 1 Athens, Los Angeles Co.	18- 3-13	6,244	recmtd.
Republic Pet., No. 1 Lawndale, Los Angeles Co.	18- 3-14	....	bldg. rig
Wilshire Oil Co., No. 2 Potrero Deep, Los Angeles Co.	27- 2-14	8,365	pump 20 b.d.
Associated Oil Co., No. 2 Inglewood Deep, Los Angeles Co.	7- 2-14	310	sd. sh. drlg.
Standard Oil Co., No. 4 Inglewood Deep, Los Angeles Co.	17- 2-14	906	sd. sh. drlg.
Ohio Oil Co., No. 16 Del Rey, Los Angeles Co.	28- 2-15	1,430	sd. sh. drlg.
Bel-Mar Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	....	bldg. rig
Elliott, D. W., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,352	sd. sh. drlg.
Pacific Drlg. Co., No. 1 Rel Rey, Los Angeles Co.	27- 2-15	6,300	sd. sh. drlg.
Mammoth Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,200	sd. sh. drlg.
Fourl, C. W., No. 3 Del Rey, Los Angeles Co.	27- 2-15	6,411	redrlg. 3,500
Fourl, C. W., No. 4 Del Rey, Los Angeles Co.	27- 2-15	....	bldg. rig
Dunlap, D. D., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,572	flow 4,500 b.d.
Royalty Service Corp., No. 1 Del Rey, Los Angeles Co.	27- 2-15	5,491	sd. sh. drlg.
Schirm & Thayer, No. 1 Del Rey, Los Angeles Co.	27- 2-15	....	bldg. rig
Union Oil Co., No. 7 Del Rey, Los Angeles Co.	27- 2-15	6,217	flow 1,970 b.d.
Union Oil Co., No. 8 Del Rey, Los Angeles Co.	27- 2-15	3,146	sd. sh. drlg.
Big Ben Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,554	sd. sh. drlg.
Doyle Pet. Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	5,695	hd. sd. drlg.
Severns Drlg. Co., No. 1 Torrance, Los Angeles Co.	24- 4-14	....	rigging up
Vanco Dev. Co., No. 1 Artesia, Los Angeles Co.	25- 3-12	....	rigged up
Frontier Oil Co., No. 1 Whittier, Los Angeles Co.	7- 2-11	2,871	sd. sh. drlg.
Universal Consd., No. 4 Montebello Deep, Los Angeles Co.	6- 2-11	5,122	pump 370 b.d.
Shively, N. O., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	3,185	cmt. 8⅝
Pressel & Tull, No. 1 Puente Hills, Los Angeles Co.	30- 2-9	4,200	suspended
International Dev. Co., No. 1, Saugus, Los Angeles Co.	34- 5-16	4,335	cleaning out
Barstow Oil Co., No. 1 Castaic, Los Angeles Co.	35- 5-16	3,255	suspended
Republic Pet. Co., No. 1 Newhall, Los Angeles Co.	6- 3-15	1,075	cleaning out
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	4,702	suspended
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	6,485	suspended
B & B Oil Co., No. 1 Newport, Orange Co.	19- 6-10	4,576	suspended
Shannon, C. G., No. 1 Yorba Linda, Orange Co.	21- 3-9	5,777	suspended
Great American Pet. Co., No. 2 East Coyote, Orange Co.	19- 3-9	3,260	reaming
Bartholomae Oil Co., No. 2 East Coyote, Orange Co.	22- 3-10	....	rigging up
Tehama Pet., No. 1 Santa Ana Canyon, S. Bernardino Co.	33- 2-8	2,698	P.B. 2,381
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18-2	6,344	suspended
Stephens, J. T., No. 1 Chula Vista, San Diego Co.	27-18-2	1,230	hd. sd. drlg.
Edmonds, E. A., No. 1 Trustee, San Diego Co.	29-15-2	2,431	hd. sd. drlg.
Great Coastal Oil Co., No. 1 Elsinore, Riverside Co.	36- 5-5	902	suspended
Corona Oil Co., No. 1 Corona, Riverside Co.	27- 3-7	....	rigged up

Atmospheric Pressure Can Be Maintained at All Times



Fulton Duplex Vacuum Regulator

ON a system discharging gas to a line under light pressure, the Fulton Duplex Vacuum Regulator will definitely prevent the pulling of a vacuum and will maintain atmospheric pressure at all times. When pressure in the storage tank falls, the valve closes. This is a valuable safeguard. Full description and prices will be mailed on request.

The Chaplin-Fulton Manufacturing Co.

28-40 Penn Avenue **Pittsburgh, Pa.**

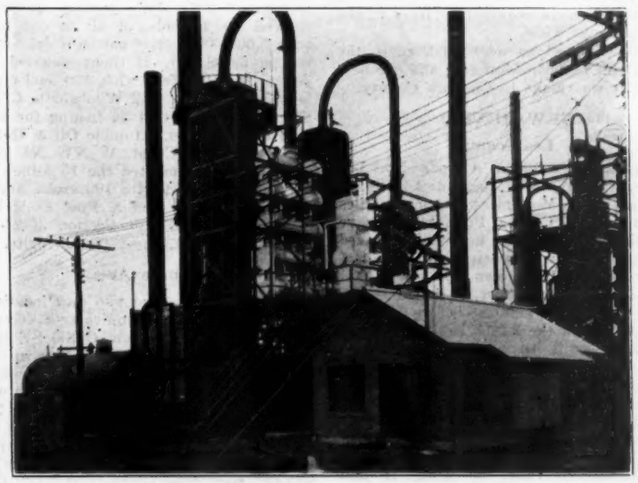
REPRESENTATIVES:

WESTCOTT & GREIS, Inc. *Sales and Service* Dallas—Tulsa

C. H. COLLINS 628 Dwight Bldg. Kansas City, Mo.

HIMELBLAU, BYFIELD & CO. 228 N. LaSalle St. Chicago, Ill.

Or any Jobber



Pump house, condensing and cooling, and fractionating equipment for pressure distillate vacuum re-run still.

Send us your Inquiries.

J. P. DEVINE MFG. CO., INC.

Subsidiary of Mt. Vernon Car Mfg. Co.

MOUNT VERNON, ILL.

NOTICE

Our facilities include a large Stress-relieving Oven, and an X-ray Department for the fabrication of Class I and Class II vessels up to 11′ in diameter and 100′ in length.

Rattlesnake Dome Extended Mile to the North; Surveys Under Way in Eastern Colorado

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 4.—Amerada Petroleum Corp.'s No. 1-D State, wildcat 7 miles north of the Eunice Pool, Lea County, New Mexico, averaged 6 bbls. an hour first two hours on gas lift. One new location was staked in the Cooper Pool in Empire Gas & Fuel Co.'s No. 3 Everett. Several wells in this pool are in the pay and being completed. One completion, Gypsy Oil Co.'s No. 1 Houston, for 836 bbls. a day, and two new locations staked, were reported in the Eunice Pool. J. P. Cusack and others' No. 1 Moon, which proves up 100 acres on the northeastern side of the Hobbs Field, boosted production from 600 bbls. a day to 7,175 bbls. by acidizing three times. One new location was staked in the Artesia area in R. D. Compton's No. 6 Mann. Getty Oil Co.'s No. 1 Malone, northwest of the Getty Pool, was dry and abandoned. Getty Oil Co. will make a 6,000-foot deep test in the Getty Pool in its No. 7 Dooley. The proven area of the Rattlesnake Dome in San Juan County was extended 1 mile to the north in Continental Oil Co.'s No. 41, which made 19 bbls. initial. Its No. 42 is rigging up.

Eastern Colorado is attracting the attention of major companies and several seismograph parties are making surveys. There were no completions or new locations in Colorado. Trojan Oil & Gas Co.'s test at Lamar had another show of oil in the lower Cherokee.

Ohio Oil Co.'s No. 1 Hoskins, on the Byron Dome, Big Horn County, Wyoming, was completed in the Tensleep for 500 bbls. initial. Sinclair interests are reported to have acquired holdings in the Lance Creek Field.

Two completions were reported in the Cut Bank Field in Montana, and one new location was made in Choteau County.

NEW MEXICO

Lea County

Amerada Petroleum Corp.'s No. 1-D State, C NW NW Section 1-20-36, a wildcat in the Monument district, 7 miles north of the Eunice Pool, which gave promise of opening a new field, proved to be a small well when tested at 3,896 feet, and is shut down for orders. It will swab in an effort to increase the flow and may acidize before drilling deeper. When the 3-inch tubing was run to 3,884 feet it began flowing and averaged 6 bbls. first two hours through the tubing. During the next four hours it averaged 5½ bbls. an hour. It was produced with bradenhead gas from an upper horizon. There was no gauge of the gas from the producing horizon, but it was insufficient to flow the well. It had shows of oil and gas in several upper horizons, which were cased off with the 7-inch at 3,750 feet. The elevation is 3,590 feet, and the producing horizon is the Terry, the pay at Hobbs and Eunice. Deepening of the well probably will determine whether the pool will be an important one.

Cooper Area

While several of the drilling wells in the Cooper Pool have reached the pay and are testing, none were listed as completions. One new location was staked in Empire Gas & Fuel Co.'s No. 3 Everett, C NW SW Section 35-24-36, in the south part of the field, offsetting the same company's No. 1 Everett on the east and Texas Co.'s No. 3 Ogg on the north.

Stanolind Oil & Gas Co.'s No. 4-A Meyers, C NE SW Section 22-24-36, in critical territory, which tested 80 bbls. of fluid an hour, 50 per cent water, at 3,608 feet, was plugged back to 3,531 feet, with packer at 3,450 feet, and flowed 75 per cent water. It was then tested at 3,400 feet and was dry. It is preparing to drill out cement to 3,560 feet and test again.

Texas Co.'s No. 2 Ogg, C NW NE Section 35-24-36, is preparing to drill deeper from 3,497 feet, where it tested 25,000,000 feet a day of dry gas. Its No. 4 Ogg, C NW NW Section 35-24-36, is drilling at 2,272 feet after plugging back to straighten, and its No. 5 Ogg, C NW SE Section 35-24-36, is coring in lime at 3,410 feet. Same company's No. 6 Ogg, C SW SE Section 35-24-36, is rigging up rotary.

Simms Oil Co.'s No. 1 Woolworth, C SE NE Section 35-24-36, recemented whipstock at 3,118 feet and is waiting. Old total depth is 3,406 feet, where drill stem was lost. Amerada Petroleum Corp.'s No. 2 Everett, C SE SW Section 26-24-36, is shut down for repairs at 3,365 feet, in lime.

Continental Oil Co.'s No. 14-A-2 Vaughn, C SE SW Section 14-24-36, cemented the 5½-inch on bottom at 3,473 feet with 400 sacks and is waiting. Its No. 14-A-1 Vaughn, C SW SW Section 14-24-36, is bottomed at 3,499 feet in lime and connecting up to test. No gauge has been taken. Same company's No. 15-A-1 Vaughn, C SE SE Section 15-24-36, showed for 2,300,000 feet of dry gas in a drill stem test at 3,460-90 feet, and is waiting after cementing the 5½-inch at 3,493 feet with 500 sacks.

Phillips Petroleum Co.'s No. 11 Woolworth, C SE NW Section 26-24-36, showed for 18 bbls. of oil in one hour with 5,500,000 feet of gas in a drill stem test at 3,498 feet. It then cemented the 7-inch at 3,468 feet with 400 sacks and is waiting. Its No. 12 Woolworth, C NE SW Section 26-24-36, is fishing for drill pipe at 3,450 feet. Humble Oil & Refining Co.'s No. 2 Coast, W NW NE Section 10-24-36, cemented the 15½-inch on bottom at 403 feet with 100 sacks, and is waiting. Empire Gas & Fuel Co.'s No. 2 Everett, C SE SW Section 35-24-36, is drilling at 3,075 feet in anhydrite.

Eunice Area

One completion and two new locations were reported in the Eunice area. Gypsy Oil Co.'s No. 1 Houston, C SE SE Section 7-21-36, the first well drilled in this section and which proves up one unit to the west and north of production, was completed at 3,917 feet and flowed 209 bbls. in six hours through the tubing, or at the rate of 836 bbls. a day. The pay was at 3,760-3,910 feet, and the elevation is 3,615 feet. The 7-inch is at 3,732 feet and the 2½-inch at 3,910 feet. It showed for 4,500,000 feet of gas with the oil.

The two locations are Gypsy Oil Co.'s No. 4 Bell-Ramsey, C NW NW Section 9-21-36, an outside well in the northern part of the field and one location north of No. 2 Bell-Ramsey, and Skelly Oil Co.'s No. 2-B State, C SW NW Section 16-21-36, on the east side, one location south and east of producers.

Humble Oil & Refining Co.'s No. 2-B State, C SE NW Section 29-21-36, began spudding February 14, set the 12½-inch at 97 feet with 125 sacks and is drilling at 1,100 feet in red beds. Repollo Oil Co.'s No. 1 Adkins, NW cor. SE Section 9-21-36, is drilling at 3,010 feet in lime, and Atlantic Oil Co.'s No. 1-C State, C SW SE Section 5-21-36, is drilling at 2,940 feet in lime. Continental Oil Co.'s No. 8-A-3 Meyers, C SW SW Section 8-21-36, is waiting at 3,820 feet, total depth, after cementing the 5½-inch at 3,770 feet with 500 sacks. Same company's No. 18-A-1 Meyers, C NE NE Section 18-21-36, which tested 2,600,000 feet of gas at 3,800 feet, cemented the 5½-inch at that depth with 250 sacks, drilled to 3,914 feet and is running tubing to test. Its No. 9-B-2 Meyers, C SE NW Section 9-21-36, is rigging up rotary. Gypsy Oil Co.'s No. 3 Bell-Ramsey, C SW SW Section 9-21-36, cemented the 4¾-inch on bottom at 3,906 feet with 120 sacks and is waiting. Shell Petroleum Corp.'s No. 1-B State, C NW NW Section 29-21-36, was drilled to 3,973 feet, cut the pay at 3,900-72 feet and is acidizing with 2,000 gallons without testing. Same company's No. 1-A State, C SE NE Section 12-21-36, plugged back from 4,404 feet to 4,047 feet and is waiting on cement. Continental Oil Co.'s No. 30-A-1 Lockhart, C SE NE Section 30-21-36, treated with 2,500 gallons of acid at 3,957 feet, total depth, and is waiting.

Hobbs Area

J. P. Cusack and others' No. 1 Moon, SW cor. NE Section 28-18-38, an outside well on the northeastern side of the field, which proves up more than 100 acres, was listed as a completion with an initial production of 7,175 bbls. of oil and 8,435 feet of gas. It came in flowing at the rate of only 600 bbls. a day, but was treated twice with 3,000 gallons of acid at each time and again with 5,000 gallons. It is located half a mile north of Continental Oil Co.'s No. 1 Grimes, and one-third of a mile east of Repollo Oil Co.'s No. 2 Grimes. It is a farm-out from Continental Oil Co. The pay was at 4,146-4,200 feet and the elevation is 3,647 feet.

Noble and others' No. 1 Townsite, CWL NW SE Section 34-18-38, in the town of Hobbs, began spudding February 14, set the 12½-inch at 257 feet with 200 sacks, and is drilling in anhydrite at 1,687 feet. Noble & Co.'s No. 3-C State, NE NW SW Section 24-18-37, on the west side, is rigging up rotary. Shell Petroleum Corp.'s No. 2-D State, C NE NW Section 24-18-37, began spudding February 14 and is drilling at 945 feet in shale. The National Securities Oil Co.'s No. 1 Linam, NE SE SW Section 33-18-37, is drilling at 4,300 feet with 3,000 feet of fluid in the hole.

Jal Area

Phillips Petroleum Co. and Pure Oil Co.'s No. 1 Worth, C NE NE Section 3-25-36, at a critical location between the Cooper and Jal Pools, is reaching an interesting depth at 3,393 feet. A drill stem test at 3,343-73 feet was dry. It bottomed the salt at 3,165 feet and topped the brown lime at 3,214 feet. Continental Oil Co.'s No. 13-A-2x Sholes, NW cor. SE Section 13-25-36, which showed 55 per cent water at 3,325 feet, tested above 3,315 feet and made 62 bbls. of fluid in 24 hours, of which 24 per cent was basic sediment and water. It is still testing.

Hammond, Inc.'s No. 1 Sholes, SE cor. NW Section 13-25-36, spudded to 470 feet in the red beds, set the 12½-inch at 79 feet with 50 sacks, and is moving in rotary. Same firm's No. 2 Sholes, NE cor. NW Section 13-25-36, began spudding January 31, set the 12½-inch at 84 feet with 50 sacks and is waiting on cement and rotary. Repollo Oil Co.'s No. 2 Gloyd, NW cor. SE Section 12-25-36, is drilling at 2,390 feet in anhydrite, and R. H. Henderson and others' No. 1 Langley, C SE SE Section 8-25-37, is fishing for tools at 703 feet in the red beds. Texas Co.'s No. 1 Parker, C SW SW Section 29-26-37, has rig up, and Trinity Drilling, Co.'s No. 1 Sholes, C NE NE Section 24-25-36, is rigging up rotary at 127 feet.

Lea Area

Anderson & Pritchard's No. 1 Fisher, C SE NE Section 8-20-35, is moving in machine to spud, and Ryan Consolidated Petroleum Corp.'s No. 1 Acree, C NE NW Section 35-20-32, is drilling at 2,968 feet in anhydrite. Argo Royalty Co.'s No. 1 Burner, SW NE NE Section 6-20-32, is bottomed at 1,362 feet and is waiting after cementing the 8¼-inch at 1,130 feet with 52 sacks. R. H. Henderson and others' No. 1 Russell-Steele, C NE NW Section 24-30-33, is drilling at 2,700 feet in salt and anhydrite, and Texas Co.'s No. 1 Cole, C NE NE Section 35-19-33, is rigging up cable tools. Texas Co.'s No. 1 Moore, C NW SE Section 21-20-32, is straightreaming at 2,875 feet, 10 feet off bottom, at which depth it had 500 feet of sulphur water.

San Simion District

Humble Oil & Refining Co.'s No. 1 Saunders, C NE NE Section 4-22-34, is drilling at 1,252 feet in red beds.

Nadine District

Repollo Oil Co.'s No. 1 Arnold, SW NW SE Section 11-20-38, is moving in rotary at 464 feet.

Maljamar Area

Maljamar Oil & Gas Co.'s No. 1 Miller, C NW SW Section 23-17-32, a mile southeast of its No. 4 Baish, is rigging up cable tools.

Eddy County

One new location in the Artesia area was reported in R. D. Compton and others' No. 6 Mann, NW SW NE Section 4-18-27, which is moving in machine.

Getty Oil Co.'s No. 1 Malone, NE cor. SE Section 5-20-29, northwest of the Getty Pool and a mile northeast of the same company's No. 2 Cook & Ironsides, which opened a new pool last year when it was completed for 26 bbls. a day, was dry and abandoned at 1,407 feet. It had a hole full of water at 1,400-07 feet. Same company's No. 7 Dooley, SW cor. NW Section 24-20-29, in the proven area of the Getty Pool, is rigging up rotary at 230 feet and will make a deep test to 6,000 feet, if necessary.

Skelly Oil Co.'s No. 1 Dow, C SW SE Section 15-17-31, Maljamar area, is drilling at 3,731 feet in lime and had an oil show at 3,595-3,600 feet. Harry Leonard and others' No. 1 Nunlee, C NW SW Section 27-16-30, north of the Jackson Pool, is drilling at 3,060 feet and showed for 4 bbls. of oil a day with some gas at 2,960-71 feet.

Roosevelt County

Claudell Development Co.'s No. 1 Wilmes, C SW SE Section 21-2s-30, Pomeroy district, a test on an 11,000-acres block for which the geology was worked out in a magnotometer survey by Cecil Yandon and Henry B. Caudill, is in sand at 3,678 feet with a show of oil and is shut down to run casing for a shutoff before going any deeper. It topped the Glorietta formation at 3,592 feet. Log of well at last reports showed it running consistently higher than other wells drilled in the same neighborhood.

Santa Fe County

Elmer Fisher's No. 1 Hill, Section 6-10n-7e, Barton district, is drilling at 2,635 feet in gray sandy lime and rain-

bows of oil continue to show in the cuttings.

Bernalillo County

Norins Realty Co., Inc.'s No. 1 Gallegas grant, C NW NW Section 19-11-4e, north of Albuquerque, is waiting for completion of water well before spudding with rotary.

San Miguel County

Cabra Springs Oil & Gas Co.'s No. 1 Thompson, SW NE NE Section 22-12-22, Pino Mesa, is making new hole at 3,825 feet after cleaning up fishing job, and its No. 3 Cabra Springs ranch, SW cor. Section 31-12-22, is spudding at 250 feet with Fort Worth spudder in 20-inch hole for deep test.

San Juan County

Continental Oil Co.'s No. 41, NE cor. Section 35-30-19, Rattlesnake Field, was completed at 808 feet for 19 bbls. initial from sand at 786-805 feet. This well is located a mile north of the nearest producer and proves up considerable territory for the Dakota. Same company's No. 42, SW NE NW Section 12-29-19, is rigging up.

COLORADO

There is a growing interest in the eastern Colorado area and most of the major companies are keeping their eyes on the territory. While no locations for new tests have been reported, there is extensive leasing going on all the way from the Wyoming boundary to New Mexico and east of the Mountain range to the Kansas-Nebraska lines. Indian Territory Illuminating Oil Co. has two seismograph parties shooting in Kit Carson County, and E. De Golyer, formerly president of Amerada Petroleum Corp., is reported directing a party operating in Arapahoe County, south of Bennett. Last year there were several seismograph parties operating in various parts of the area and their reports long since have gone into headquarters for consideration. Recently Phillips Petroleum Co. was reported to have sent a party into the territory for some experimental shooting, preliminary to a more detailed survey. This company is expected to open an office either in Colorao Springs or Denver. This past week a representative of Shell Petroleum Corp. was reported in the State looking over the territory to gather first-hand knowledge of the situation. Carter Oil Co. recently reopened an office in Denver. Among companies which have blocks in the territory are Gypsy, Texas, Continental, Magnolia and others.

Boulder County

Leslie R. Steele and others' No. 1 Maxwell, SW NE NW Section 24-1n-7e, Boulder district, is drilling at 265 feet.

Lincoln County

Consolidated Smelting & Metals Corp.'s No. 1 Hancock, NE cor. SW Section 7-17-52, Haswell district, is drilling at 1,180 feet in shale.

Moffat County

Stanolind Oil & Gas Co.'s No. 35-SD Parkinson, SE cor. NE Section 22-4n-9e, Iles Dome, is coring in the objective Sundance at 3,340 feet and will be an early completion.

Prowers County

Trojan Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, a test which is at an interesting stage, is drilling at 4,858 feet in the lower Cherokee, after stopping again to cement off caves. Cementing began at around 4,671 feet. Another show of black oil was reported at 4,858 feet.

WYOMING

Big Horn County

Ohio Oil Co.'s No. 1 Hoskins, SW cor. Section 14-56-97, on the Byron Dome, is estimated at 500 bbls. a day on the basis of a swabbing test, and is rigging up to pump. It was completed at 5,214 feet in the Tensleep. It topped the Embar at 5,080 feet and the Tensleep at 5,130 feet. The elevation is 4,097 feet. It is an offset to a producer and proves up one location to the northeast.

W. O. Taylor and others' No. 1 Hoskins, SE SE Section 25-56-87, Byron Dome, which has been shut down for several months at 5,275 feet, has resumed and is fishing for drill pipe. Crosby & Huntington's No. 1 Denio, Tract 43-C, Section 15-55-97, recemented the 10-inch at 3,000 feet and is waiting. Wyoming Oil & Refining Co.'s No. 1 Evans, NE cor, NW Section 12-49-91, Paintrock Dome, is rigged and ready to spud. Yale Oil Corp.'s No. 1 Blakesley, NE NW Section 28-49-91, is drilling at 900 feet.

Carbon County

Earl W. Reeder, Inc.'s No. 1 Whitford, SW SE SE Section 24-20-89, Overland Dome, one-fourth of a mile west of its No. 1 Union Pacific, was drilled to 3,590 feet and is preparing to run the 10-inch to bottom and cement. It is on top of the first sand in the General Petroleum series, which showed for several hundred barrels a day in the test to the east. It will standardize and drill in with cable tools. Same company's No. 1 Union Pacific, C SW SW Section 19-20-83, is waiting at 5,931 feet for rotary with which to fish out parted 4¾-inch pipe. Ohio Oil Co. and California Co.'s No. 1 Kyle, NE SE NE Section 26-21-79, Medicine Bow district, is drilling at 4,503 feet in shale. Ohio Oil Co.'s No. 10 Harrison & Cooper, NE NW SW Section 35-20-78, Rock Creek Field, has begun deepening from 2,734 feet. This is to be a test of the Sundance, which has not been drilled in this field. Argo Oil Co.'s No. 1 Johnson-Union Pacific, NE cor. SE Section 5-24-87, O'Brien Springs, is backing up from 3,500 feet to test show of oil in the Muddy at 2,835 feet.

Niobrara County

Ohio Oil Co.'s No. 2 Rohlf, NE SE Section 32-36-65, Lance Creek, is drilling at 3,564 feet and is near the objective Sundance sand. Continental Oil Co.'s No. 1 Apex-3, SW NE SW Section 34-36-65, old gas well deepening from 3,406 feet, is bottomed at 3,510 feet in sand topped at 3,507 feet and is swabbing to test. Sinclair-Wyoming Oil Co. is reported to have acquired considerable acreage in the Lance Creek Field and to be preparing to start a deep test in the spring. Confirmation has not been obtained. Ohio Oil Co., Continental Oil Co. and Argo Oil Co. control most of the acreage in the west end of the field. A few months ago the Sinclair interests made a deal with the Ohio company for 1,000 bbls. of crude a day for the refinery at Parco. The refinery is said to be in need of crude and the company was reported to have tried to purchase the Ohio holdings in Lance Creek, but the latter did not want to sell. Argo Oil Co. has a producer in Section 28-35-64, more than 3 miles to the northeast of production, which was drilled nearly 15 years ago and is still making 20 to 30 bbls. daily on the pump. No other producer was completed in the immediate vicinity. The Sundance, which was proven productive several years ago in the west end, has never been tested around the Argo well.

Fremont County

Mid-American Oil Co.'s No. 2 Government, C NE SW Section 14-28-92, Sheep Creek, has resumed drilling after cementing the 8¼-inch at 1,640 feet.

Park County

Garland Oil Co.'s No. 2 Government, SE NE NW Section 14-56-98, Garland

PHOTOSTAT COPIES AND BLUE PRINTS

ONE HOUR SERVICE

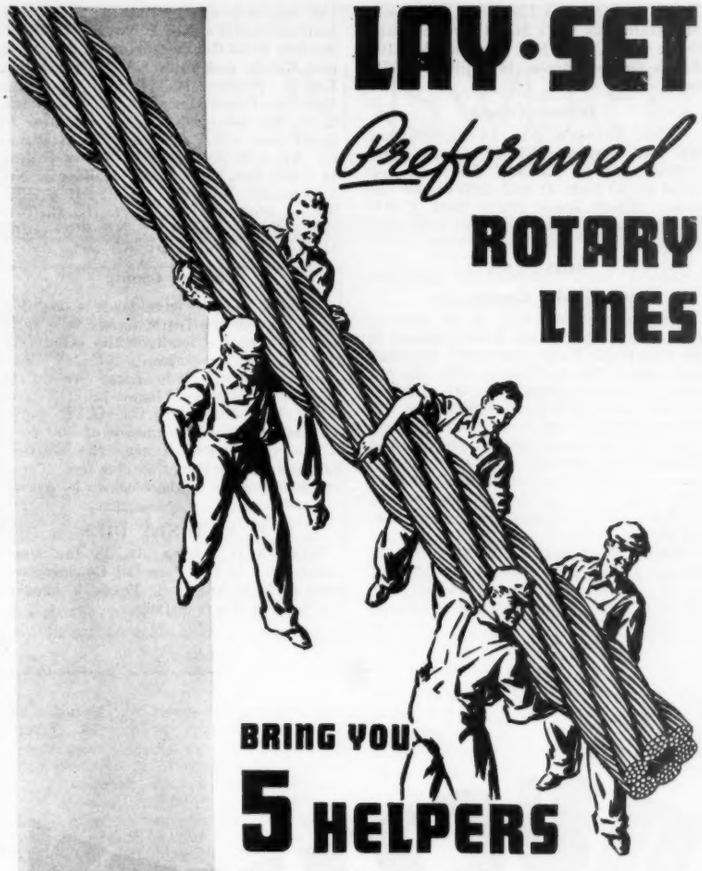
KODAKS — Engineering Supplies, City Maps, Lantern Slides, 40x50 Super Stats, Kodak Finishing, Copying and Enlarging, Kodalith Negatives

Dial 3-7166

Tulsa Camera Record Co.

317 South Boston Street

TULSA, OKLA.



LAY·SET *Preformed* **ROTARY LINES**

BRING YOU 5 HELPERS

Because Lay-Set Rotary Lines are preformed, and therefore free of service-shortening internal stress, Lay-Set brings you five important helpers:

1. Lay-Set whips less at high speed; can be spooled faster.
2. Lay-Set always spools tightly, and resists piling up and crushing on the drum.
3. Lay-Set is the *fastest* line on the market; returning the idle block in much less time.
4. Lay-Set does not require backtwisting.
5. Lay-Set lasts longer—makes more hole; thus saving replacement costs, labor and shut-downs.

These are 5 big helpers and there are at least a dozen more. They are due to the fact that every wire and strand in Lay-Set is relaxed—*preformed*. This difference in manufacture makes a tremendous difference in line service. Write today for complete information.

HAZARD WIRE ROPE COMPANY, Inc.

Wilkes-Barre, Pennsylvania

An Associate Company of American Chain Company, Inc.

In Business for Your Safety

District Offices: New York, Chicago, Philadelphia, Fort Worth, San Francisco, Pittsburgh, Denver, Los Angeles, Birmingham, Tacoma

NRA CODE — ACCO

LAY·SET *Preformed* ROTARY LINES

C. M. HEETER, SONS & CO., INC.

MAIN OFFICE AND WORKS, BUTLER, PA.

"Heeter's" Packers and Swabs

Heeter's Improved Patent Swabs, Corrugated Friction Sockets, Wire Line Pumping Outfits, Sand Pumps and other Gas and Oil Well Materials

Dome, is drilling at 1,900 feet, and Rocky Mountain Gas Co.'s No. 1 Oregon Basin Oil & Gas, C SW NW Section 32-51-100, South Oregon Basin, is drilling at 722 feet.

Weston County

Irene Easton's No. 14 Government, NE SW Section 30-46-63, Osage Field, drilled sand at 1,393-97 feet and hole filled up 80 feet. It will drill deeper and shoot. Albert Jones' No. 9 Bock, C SW NE Section 21-46-63, is rigged and ready to spud.

MONTANA

Glacier County

Two completions, both in or close to the town of Cut Bank, were reported in the Cut Bank Field this week. Marshall and others' No. 1 Wilkins, NE SE NE Section 12-33-6w, found the pay at 2,955-75 feet and drilled to 2,995 feet. It pumped 62 bbls. first 24 hours. Wickstrand & Walgren's No. 1 Simero, Lot 5, Block 17, Section 12-33-6w, cut the pay at 2,962-92 feet and was drilled to 3,020 feet. Oil rose 300 to 400 feet in the hole, and it is running rods and tubing to test.

Askins' No. 1 Askins, Lot 24, Block 33, Section 12-33-6w, is drilling at 415 feet, and Fist and others' No. 1 Donen, Lot 10, Block 11, Section 12-33-6w, cemented the 6⅝-inch on bottom at 2,930 feet. Gardner-Smith's No. 1 Tweedy, NE NE Section 36-33-6w, is moving in materials, and Kately & Kaup's No. 1 Drumheller, Lot 1, Section 10-34-6w, is spudding. Montana Power Gas Co.'s No. 1 O'Brien, C SE SE Section 31-34-5w, is fishing at 2,440 feet. Olive Oil Co.'s No. 3 Winkler, NE NW Section 35-35-6w, is drilling at 1,400 feet, and Bruce Radigan's No. 1 Connolly, NW SW NW Section 7-35-5w, is drilling at 125 feet. R. C. Tarrant's No. 1 Connolly, C NE SE Section 31-34-5w, is drilling at 575 feet.

Choteau County

Mills & Decker have made a location for a test on the Little Sandy structure, southeast of the town of Big Sandy, in their No. 1 Government, NE NW Section 29-27-13e. This dome was first mapped by Dorsey Hagar in 1931 and later checked by Maj. G. G. Howard. The latter reports a closure of 500 feet. A water well drilled near the location had gas in the Eagle at 500 feet. There are 20,000 acres in the block to be tested.

H. P. ABNEY DIES

Houston P. Abney, 31, in the legal department of the Pure Oil Co., dropped dead at Fort Stockton, Texas, February 25, from a heart attack.

★

DUCTILITY

★

Perfectly welded pipe that can be readily shaped for any job without loss of tensile properties...that's

ALLEGHENY STEEL PIPE

★

Allegheny Steel Co.

BRACKENRIDGE, PA.

Sales Offices and Warehouse Stocks in the Principal Cities

ALLEGHENY PRODUCTS: SHEETS FOR AUTOMOBILE BODIES, METALLIC FURNITURE, DEEP DRAWING—ALLEGHENY METAL —ALLEGHENY ALLOYS—ELECTRICAL SHEETS—STEEL CASTINGS—SEAMLESS TUBING—BOILER TUBES—PIPE.

Eastern Fields

(Continued from Page 69)

on the Charles W. Wilcox farm, same district. West Bickerstaff has completed a rig on the Frank Keith farm. Lucas and Mahaney have a location for No. 5 on the J. H. and Laura Kelley farm. Ralph Roberts and others are down 2,025 feet on the Hayhurst and McGinnis farm.

In Grant district, Ritchie County, Russell Morris and others have started drilling on the Scadden heirs farm about 150 feet north of a test on the Joseph Newbrough farm, which was dry. It is on the headwaters of Wolf Pen Run. Devils Hole Oil Co. is down 1,200 feet in a second test on the Ritchie Lumber Co. tract. Ralph Jackson has a rig standing on the S. and E. L. Tennant farm. In Murphy district C. S. Morris is drilling on the W. E. Cox farm on Leatherbark Creek. Same operator has a location on the H. B. Ayers farm.

In Raleigh County Godfrey L. Cabot, Inc., is down 2,350 feet in No. 6 on the Beaver Coal Co. tract in Slab Fork district and 2,250 feet in No. 7. In Clay County, Otter district, Benedum and Trees have reached 1,600 feet on the L. E. Rogers farm.

In Roane County Jackson and Bowers are building a rig on the J. A. and Amy Sarvey heirs farm in Smithfield district. Big Four Drilling Co. is down 500 feet on the Frank Wallbrown farm and has a location on the Mary E. Hershberger farm. In Curtis district K. M. Hunt and others are drilling at 1,025 feet on T. J. Murray farm, a test.

Michigan Fields

(Continued from Page 70)

and gas to be shot in an attempt to make a small producer of the No. 2 Edward Parlberg, C S half NW SE Section 20-10n-6e, Birch Run Township, Saginaw County. The Berea was topped at 1,526 feet and the hole drilled to 1,530½ feet. One other Saginaw County test was shut down in Chapin Township and another uncompleted in Tittabawassee Township.

Roscommon County

The Black Diamond Petroleum Syndicate's No. 1 Wilbur J. and L. S. Vaughn, NW NW NE Section 28-24-2w, Lyons Township, Roscommon County, was reported drilling in the Dundee at an unannounced depth.

Beaverton

An increased amount of interest was exhibited last week in the Gladwin County, Beaverton Township, area, where one small Dundee producer has been brought in and several new tests are drilling.

The Roosevelt Oil Co. had reached the greatest depth of any of the new tests drilling at more than 2,250 feet in its No. 1 Arnold Haviland, SE NE SE Section 4-17-2w, near the discovery well.

Three other new tests, one on a location not yet placed under state permit, were being started by three different operators including M. F. Whitehill, who drilled the discovery well, the Sun Oil Co. and the new Beaverton Oil & Gas Co., Inc.

Mr. Whitehill had erected his rig on the No. 1 Spicer, N half SW NW Section 11, Beaverton Township, an offset to the discovery. Sun Oil was driving pipe in the No. 1 Mary A. Hines, C NW NE Section 31-17n-1w, Tobacco Township, Gladwin County, while the Beaverton company was moving in tools for the No. 1 Mrs. Ross in Section 7, Tobacco Township, a location for which no permit as yet has been issued.

The Sun Oil Co. also started building rig for its No. 1 Becker, in Section 2-18n-3w, Arthur Township, Clare County, yet to be placed under permit.

New Locations

Ten new permits were issued by the State Conservation Department during the period from February 20 to 27, all but two for locations in proved fields.

One of the two wildcats was the McClanahan Oil Co.'s No. 1 H. E. Heath, C NW SW Section 31-19n-3e, Adams Township, Arenac County, across the line from Gladwin County, on which operations already have been started. The other is only a semiwildcat for the Gordon Oil Co. on the No. 1 E. Tiffany, C SW NE Section 32-13n-7w, a new Millbrook Township, Mecosta County gas test.

Five new locations were placed under permit in Porter Township, Midland County, as follows: Pure Oil Co.'s No. 5 H. H. Peek, SE SE NW Section 16-13n-1w; same company's No. 7 Everett Kleinhans, NW NW NE Section 20; Smith Petroleum Co.'s No. 4 Elic Bushre, SE SE NE Section 22; Sun Oil Co.'s No. 8 J. L. Miller Estate, NE NE SW Section 16; and the Northern Oil & Gas Corp.'s No. 4 Glen R. Hathaway, NW NE NW Section 18. All are on undeveloped locations on proved leases.

Two other Midland County locations are for the Pure's No. 4-B Mattie Yost, C S half SW SE Section 34-14n-2w, Greendale Township, and the Columbia Oil & Gas Co.'s No. 5 F. H. Taulker, SW NE SW Section 7-14n-1w, Lee Township.

The Columbia company also took out a permit for the No. 2 Edward and Carrie Conant, SW SW SE Section 25-16n-4w, Vernon Township, Isabella County.

California Fields

(Continued from Page 79)

ity oil and 1,144,000 feet of natural gas per day from 5,650 feet after the hole had been completed with a 4¾-inch liner, including 311 feet of perforated. Shell has four other wells under way in this field and is rigging up No. 85 Taylor for early spud. The Associated Oil Co. is erecting rigs for three new wells, and the entire trio is expected to get under way within the next few weeks. The Property Service Corporation is having a lot of trouble finishing No. 3 Dabney but should have the hole ready for a final test within the next few days.

The Rio Grande Oil Co., which took over the Perkins lease in the Santa Barbara Mesa a few months ago, added another new well to its list of producers in this field by finishing No. 6 Perkins. This new well, which topped the oil sand at 1,993 feet and was bottomed at 2,015 feet, was brought in flowing 816 bbls. of clean 18.1 gravity oil per day. This is the sixth successful completion on the Perkins lease and the company has scheduled No. 7 for completion on March 10. Drilling operations in this field have shown a very drastic decline during the past two months, and it begins to look like this field will pass out of the picture in the not very far distant future. Operators having wells in this field could show a nice profit if the curtailment committee could see its way clear to permit a fair production ratio. These wells can be drilled at a minimum of expense, but at the same time there is no use of drilling new wells if they can not be produced after being finished.

WIDOW OF OIL MAN DIES

SALT LAKE CITY, Utah, Mar. 4.—Mrs. William Fleming, 80, widow of William Fleming, pioneer oil man of Oil City, Pa., died in the hotel apartment of her daughter, Mrs. George O. Relf, here. Her husband was vice president and general manager of the Ohio Oil Co. from 1889 until his death in 1901.

Surviving Mrs. Fleming are Mrs. Relf, Mrs. Edward R. Gnade of Oil City, a daughter, and a son, Walter W. Fleming of Tulsa, vice president of the Ohio Oil Co. and president of the Marathon Oil Co.

Another daughter, Mrs. Margaret Fleming Landon, first wife of Governor Alfred W. Landon of Kansas, died 10 years ago. She was the mother of the governor's daughter, Miss Peggy Ann Landon.

BRITISH-AMERICAN EXPANDS

CRESTON, British Columbia, Mar. 2. The British-American Oil Co. has completed a warehouse and storage plant here, and will construct similar plants at Cranbrook and Golden, British Columbia, to serve the East Kootenay district.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Kerosene Flashing Temperatures and Explosive Conditions

I should like to know how to convert open cup flash points to closed. How much gas from kerosene does it take to make an explosive mixture? Is it not true that most kerosene explosions, especially in stoves, result from improper use of the kerosene? —C. T. E.

There is no exact relation between flashpoints determined in open cup and by closed cup instruments. Very often there will not be much difference in the flashing temperatures of high flashpoint oils, say 150° F. and above, but there may be a wide variation for low flash products. A Tag closed tester, the preferred standard method for testing all volatile flammable liquids flashing below 175° F., may show about 5° F. lower, than when the same oil is tested in the Cleveland open cup. However, conversions or comparisons of this nature do not give anything reliable. In some instances a kerosene oil may flash in the closed cup at 105° F. but will not flash below 120° F. in the open cup.

The purpose of the flashpoint determination is to know the temperature at which sufficient vapor will be evolved which, when mixed with air, will be explosive upon the introduction of a flame, or even a spark. The test was originally devised to detect illuminating oils that were not safe because of the fire hazard. The flashpoint of any substance varies with the conditions under which the test is made, including the procedure and the apparatus used when making the test. Petroleum technologists, recognizing these facts, have invented a number of instruments called flash testers and defined the details for making the flashpoint determination. The important condition being that no part of the vapors shall be allowed to escape from the cup. The U. S. Government, the scientific societies and many purchasing agencies have adopted the instrument known as the Tag closed tester as meeting the conditions required for the examination of kerosene.

The danger that must always be guarded against during the handling and storage of petroleum oils is the possible ignition of the vapors in the container. There is always a vapor space above the oil in drums, tanks, lamps and other containers. In the case of kerosene this may be almost entirely hydrocarbon vapors, or a mixture of vapors and air. If the vapor consists of over 90 per cent hydrocarbons it will not support combustion while confined, because of the lack of air, but may be ignited and will burn like any combustible gas, if permitted to flow into the air. When this vapor is mixed with air to form a mixture containing between 1 and 8 per cent hydrocarbons, it becomes a dangerous substance that may explode with considerable force.

There are very few explosions and fires resulting from the use of kerosene as an illuminant, most of the accidents being due to its use for starting fires in stoves and furnaces. Kerosene does not ignite easily and burn like gasoline. As has been indicated, it must be heated to the flashpoint before it will give off combustible vapor but gasoline flashes at a temperature much below 0° F. Many investigations of kerosene fires and explosions have revealed that the body of the stove was hot enough, or there remained enough heat from a previous unsuccessful effort to get a good fire started, to heat the kerosene that was poured into the stove to the flashpoint and thus form an explosive mixture to be set off by the introduction of a lighted match, or possibly a spark remaining among the kindling.

Kerosene is manufactured to be used as an illuminant and fuel for furnaces and tractors. The authorities agree that its use to aid in the kindling of a fire is a hazardous and dangerous practice. Such use of kerosene is advised against by refiners, the national safety societies, and the fire protection associations.

Solvent Processes Mean Reduced Use of Fuller's Earth

We are interested in learning all we can about the apparent wide spread of the solvent processes for the recovery of lubricating oils, and particularly the effect of the use of these on the future use of fuller's earth. Any information you may care to give us will be greatly appreciated.—H. E. B.

The development of solvent extraction methods for the manufacture of lubricating oils resulted from the demand for viscosity stability, especially as represented by viscosity index. Previously the lubricating stocks were purified by chemical treatment and filtering, but solvent methods are entirely physical. The principle is similar to that required for a separation of sand and salt, the application of water causing the salt to go into solution, from which it may be obtained by evaporation, and the insoluble sand settles on the bottom of the containing vessel.

The raw lubricating stock must be freed from wax in addition to other substances that are objectionable when present in a lubricating oil. The solvent methods make of one or more liquids that will remove both wax and impurities. An example is the method using propane, a hydrocarbon which boils at 44 degrees below zero. Propane is a good solvent for wax, which solidifies at a high temperature, so it is easily separated from the solution. At relatively higher temperatures propane acts to remove resins, gums, coloring compounds, which tend to reduce the viscosity index and to darken the oil.

The older methods of treating were usually followed by filtering but from the outline given it is apparent that the newer methods require neither acid nor the extensive filtering through fuller's earth.

Just how much less filtering earth will be required for decolorizing lubricating oils is difficult to estimate. Some refiners will probably not use any, others may continue to brighten some of their oils by passing through earth filters.

It appears, under present conditions, that refinery consumption of fuller's earth may be expected to drop at least 50 per cent within five years.

At this time there are about 10 solvent and dewaxing processes available and in use for making high grade lubricating oils. There are about 30 different plants in operation, and under construction, in the United States, having a total daily capacity of 24,000 bbls. per day of finished oil. The daily consumption of lubricating oil in automobiles is about 37,000 bbls., approximately 40 per cent of the total consumption.

Reference: The Oil and Gas Journal, March 29, 1934, page 44, and July 19, 1934, page 14.

Quantity of Fuel Oil Consumed By Steamships and Grades

We wish to know what quantities of fuel oil are used by oil burning ships? This should be shown for some year when the shipping business is good. What types of oil are suitable for this service?—W. S. H.

According to the U. S. Bureau of Mines, reporting for the year 1929, the quantity of fuel oil consumed by steamships during one year was 92,042,365 bbls. In the same year the U. S. Navy and Army transports, etc., required 6,392,336 bbls. of fuel oil.

The trade is guided by the U. S. Specifications for fuel oils, designed as Bunker fuels. These, covering three grades of heavy fuel oils, numbered 4, 5 and 6, are confined to—water and sediment 1 to 2 per cent; ash, 0.1 and 0.15 per cent; viscosity Saybolt Universal at 100° F., 500 for the No. 4 grade; viscosity Furol at 122° F., 25 to 100 for No. 5 grade and 100 to 200 for No. 6 grade; flashpoint 150° F., closed, minimum. These are frequently modified by contract to include sulphur 0.75 to 1.75 per cent, with a maximum of 1 per cent sediment. The oil shall be free from any material that will tend to clog the burners.

The oil for the U. S. Navy and Army is always obtained as the competitive bidding on a quality and price basis, at designated delivery points. Steamers and steamship companies purchase their oil in a similar manner, and often on long-time contracts.

Indiana Oxidation Test Method For Lubricating Oils

In an article in The Oil and Gas Journal, October 26, 1933, page 60, Commercial Application of Chlorex Process in the Manufacture of High Grade Motor Oils, by Bahlke, Brown and Diwoky, mention is made of the Indiana oxidation test. Would it be possible for you to supply the details of this method?—A. S. H.

The oil under test is placed in a glass tube, which is held in an oil bath regulated at constant temperature. The tubes are made of regular Pyrex tubing, 20 inches long and 1¾ inches internal diameter. A flowmeter is provided to measure the stream of air which is delivered into the oxidation tube by means of a glass tube ($\frac{3}{16}$" internal diameter), supported by a cork and reaching to within ¼-inch of the bottom. A "bright stock" of high flash and good oxidation stability is used for the bath oil.

The test is started with 300 cc. of oil, the level of which in the tube should be well below the bath level. The test oil is kept at a temperature of 341°F. (corrected), which requires a temperature of approximately 342°F. in the bath. Air is passed through the oil at a rate of 10 liters per hour (measured under laboratory conditions). Periodically, depending on the oxidation characteristics of the oil, 25 cc. of oil are removed, 10 grams of which are immediately weighed into a tared Erlenmeyer flask. This portion is diluted with 100 cc. A.S.T.M. precipitation naphtha and allowed to stand three hours before filtering through a prepared Gooch crucible. The crucible containing the insolubles is washed with approximately 100 cc. of naphtha, after which it is dried one-half hour at 300°F. and weighed. The amount of insoluble is expressed as mg. per 10 grams of oil, and a sufficient number of samples are taken for test to accurately determine (1) sludging time, i.e., the time required to form 10 mg. of naphtha insoluble per 10 g. oil and (2) 100 mg. point, i.e., time to form 10 mg. of insolubles. These results are conveniently obtained by plotting insoluble against time of oxidation on a log chart.

The determination of viscosity usage, which becomes the more important criterion when sludging time is much over 50 hours, is made by taking a 100 cc. sample every 50 hours. This sample is promptly run for viscosity and put back in the oxidation tube. Oxidation tests are ordinarily continued either to the 100 mg. point or for 150 hours or 200 hours for "sludgeless" oils.

Experience with this test by several laboratories have shown that the sludging time may be checked within about 5 per cent by different operators on different apparatus. Accurate temperature control, fairly exact control of air rate, change of the oil in the bath before marked thickening takes place and careful cleaning of the oxidation tubes are essential. As it has been found that the sludging time varies inversely with the partial pressure of oxygen (within a limited range), correction must be made for tests at high altitudes. The tubes are cleaned by washing with naphtha, followed by soaking first with alcoholic KOH, then with chromic acid cleaning solution.

Reference: S.A.E. Jr., Vol. 34, May 1934, p. 167.

PERSONAL PARAGRAPHS

WILLIS L. HARTMAN, of Hartman & Blair, Kansas, made a visit to Oklahoma last week.

* * *

EVERETT L. BRADLEY, geologist and oil operator of Wichita, Kans., was a visitor in Tulsa last week.

* * *

E. B. REESER, president of Barnsdall Corporation, and MRS. REESER were in Los Angeles, Calif., last week.

* * *

LINDSAY MORGAN is a new member of the geological department of the Vickers Petroleum Company, of Wichita, Kans.

* * *

PAUL L. LYON, chief scout of the Stanolind Crude Oil Purchasing Company, made a trip through Kansas areas last week.

* * *

ELMO FRASER and GEORGE P. WISDOM, of the Rike Full Float Valve Corporation, Longview, Tex., have returned from a tour of the Mid-Continent fields.

* * *

EDWARD G. MUELLER, president; HARRY POTTS, vice president; and SHEP F. MIERS, representative of the Kerotest Manufacturing Company, are making a tour of Mid-Continent points.

* * *

L. D. HILTON, of the Cameron Iron Works, Inc., Houston, Tex., was a recent visitor in Tulsa.

* * *

MR. and MRS. HOWARD D. ATHA, of Mount Pleasant, Mich., left last week on an extended vacation in St. Petersburg, Fla.

* * *

JOHN LARKIN, president of the Larkin Packer Company, St. Louis, Mo., was a business visitor in Texas during the past week.

* * *

ARTHUR E. JOHNSON, president of Argo Oil Company and affiliated companies, of Denver, Colo., is in New York on company business.

* * *

M. T. RATHVON, of Casper, Wyo., general superintendent of operations for the Argo Oil Company, was in Denver, Colo., the past week.

* * *

P. R. NAYLOR, president of Maple Leaf Petroleums, Ltd., has returned to Coutts, Alberta, after spending the winter months at his home in Denver, Colo.

* * *

R. W. McILVAIN, vice president of the Pure Oil Company, Chicago, has been spending a few days in the Fort Worth, Tex., division office of the company.

* * *

JOHN P. STEELE, division manager for the South Chester Tube Company, Fort Worth, Tex., has been elected president of the Fort Worth Rifle and Pistol Club.

* * *

MISS M. V. SHIFFLER, in charge of the land department of the Argo Oil Company, of Denver, Colo., is taking a vacation in Florida and other southern resorts.

* * *

DAN L. MAHONEY, in the crude purchasing department of the Stanolind Oil & Gas Company, has moved his headquarters from Fort Worth, Tex., to Wichita Falls, Tex.

W. H. McKISSICK, president of the Peerless Supply Company, is ill at St. Johns Hospital, Tulsa.

* * *

E. H. SALRIN, vice president of Tide Water Oil Company at Houston, Tex., is on an extended business trip to New York.

* * *

DAN AULD and RUPERT RICKER, independent operators of San Antonio, Tex., spent several days in Houston, Tex., on business the past week.

* * *

D. R. SNOW, vice president of Barnsdall Oil Company, with headquarters at Tulsa, visited the company's offices at Houston, Tex., last week.

* * *

H. K. HASSELMAN, president of the Salt Dome Oil Company, at Houston, Tex., visited the company's offices at San Antonio, Tex., last week.

* * *

HOWARD S. BRYANT, district geologist in Kansas for the Skelly Oil Company, with offices at Wichita, and MRS. BRYANT announce the birth of a son at a Wichita hospital, February 26.

* * *

H. LESLIE STEGALL, scout for the crude oil department of the Shell Petroleum Corporation, Tyler, Tex., has been transferred to the division offices of the company at Houston, Tex.

H. N. PARDEE, assistant manager of the Kentucky-Kansas-Oklahoma division of the Texas Company, is on the sick list.

* * *

D. J. MORAN, president of the Continental Oil Company, New York, has been spending the past week in Mid-Continent and Texas offices of the company.

* * *

L. R. RUSSELL, of Harry Adams Oil Corporation, of Midland, Tex., and MRS. DOROTHY WELLS, of Wink, Tex., were married February 14 at Mentone, Tex.

* * *

J. W. JORDAN, formerly in Tyler, Tex., with Sinclair Prairie Oil Company, is now production superintendent for West Texas and with headquarters at Midland, Tex.

* * *

HOWARD OLSON, a recent graduate engineer of the University of Oklahoma, has become a junior engineer of the British-American Oil Production Company, in Tulsa.

* * *

J. B. O'CONNOR, sales manager of Clark Brothers Company, has just returned to his headquarters at Olean, N. Y., after a three weeks' tour of the oil districts of Louisiana, Texas, and Oklahoma.

* * *

O. G. MARTIN, treasurer of Argo Oil Company, has returned to Denver, Colo., headquarters after a business trip to Tulsa.

* * *

BURKS WHITE, formerly of Mount Pleasant, Mich., has been transferred from Midland, Tex., to Wichita, Kans., by the Michigan Oil & Gas Corporation.

* * *

S. F. SHAW, consulting engineer, San Antonio, Tex., is in Oklahoma City, Okla., building gas-lift plants for the Westgate Oil Company and the Grison Oil Company.

* * *

F. O. WILKINS, superintendent of the Atha Oil Company and the Atha Drilling Company, has returned to Mount Pleasant, Mich., after a two weeks' visit in Florida.

* * *

C. COTTINGHAM, of Columbus, Ohio; CHARLES COTTINGHAM, of Tuscon, Ariz., and HOWE WALKER, of Tulsa, attended the annual meeting of the Grayburg Oil Company at Artesia, N. Mex.

* * *

ALBERT G. LOOMIS has resigned his position as chief chemist, Gulf Research & Development Corporation, to become research director of the Columbia Chemical Division, Pittsburgh Plate Glass Company, Barberton, Ohio.

* * *

CLARENCE M. CHASE, of the Dallas, Tex., office of the Sun Oil Company, has been transferred to West Texas to do scouting work, relieving C. C. POPE of that work at San Angelo so that Mr. Pope can devote his entire time to land work.

* * *

P. D. MELLON, chief engineer of the Canadian Western Natural Gas, Light, Heat & Power Company, and H. S. WATTS, secretary-treasurer, have returned to Calgary, Alberta, from their official visit to the Lethbridge office and the Bow Island repressuring plant.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

March 5, 1910

D. F. Connolly is elected president of the new Tulsa Commercial Club of 400 members.

Joplin and Miami zinc smelters are heavy consumers of Oklahoma natural gas. The Quapaw Gas Co. is laying a line to Joplin to increase the supply from the Caney River gas fields, where 20,000,000 and 30,000,000-foot gassers are not unusual.

Commercial interests of Baton Rouge, La., are endeavoring to have that city made a subport of entry. The strongest card the city has is that in a few months the Standard Oil Co. will be shipping oil and refined products out of Baton Rouge for coast and foreign ports.

20 Years Ago

March 4, 1915

The owners of the Keokuk dam have been granted an injunction temporarily restraining the Prairie Pipe Line Co. from looping its main line crossing the Mississippi River near Fort Madison, Iowa.

C. J. Wrightsman sells his Susie Crow lease in the Cushing Field for $485,000. F. M. Aiken, J. S. Cosden and Franchot & Franchot are the purchasers.

A Cape Town, South Africa, man has a "gasoline substitute." He calls it Natalite. He says "it can be made anywhere." He also says the world's oil supply will soon give out.

Manual Hirsh, president of Tammany Oil Co., dies in Tulsa. Mr. Hirsh was a member of Tammany Hall in New York, whence the name of his company.

Dorsey Hager, California geologist, has moved to Tulsa and opened an office. Mr. Hager is a writer on scientific subjects, with the gift of presenting geology in common-every-day English.

10 Years Ago

March 5, 1925

Only one pool in the United States, Long Beach, California, is producing 100,000 bbls. per day or more, and only 30 pools in the United States can produce 15,000 bbls. per day or more. Of these 11 are in California, 1 in Wyoming, 8 in Oklahoma, 7 in Texas, 1 in Arkansas, 1 in Louisiana, and 1 in Pennsylvania.

Forty-three per cent of the current crude oil production in the United States grades 36 degrees and over, 19 per cent grades from 26 to 35.9 degrees and 38 per cent below 26 degrees.

Fred Faulkner, general superintendent of the Tide Water Oil Co.'s refinery in Bayonne, N. J., has retired after 40 years of service with the company. He started as a pipe fitter's helper. Frank Turbett succeeds Mr. Faulkner.

John J. Corrin has been made general manager of the Hope Natural Gas Co.

Francis D. Murphy, general manager of the Houston Gas & Fuel Co., Houston, Tex., is dead. He was a native of Elmira, N. Y.

JOHN EVANS, division engineer, and JOHN BARTRAM, division geologist for the Stanolind Oil & Gas Company, with headquarters in Casper, Wyo., are in Craig, Colo.

* * *

GEORGE A. DYE, executive vice president of H. F. Wilcox Oil & Gas Company, has been confined to his home with influenza. His condition is reported improved.

* * *

J. H. JOHNSON has been appointed assistant to JOE HALE, chief scout for the Texas Company. He succeeds DON WITT, who has been transferred to the production department in Tulsa.

* * *

ED BRYAN and A. N. GUENTHROP, of Tulsa, in the land department of the Sinclair Prairie Oil Company, were in Casper, Wyo., several days checking permits owned by the Sinclair-Wyoming Oil Company.

* * *

HARRY R. KRAMP has been made sales representative of the tractor division of the Allis-Chalmers Company in southern Oklahoma. Mr. Kramp, a graduate of the engineering school of Oklahoma A. and M., formerly was connected with the Texas Company.

* * *

DR. FREDERICK D. ROSSINI, of the National Bureau of Standards, Washington, D. C., has been appointed director of the American Petroleum Institute Research Project 6 on the Isolation and Identification of Hydrocarbons in Petroleum. This project was formerly directed by the late DR. E. W. WASHBURN.

* * *

FRED B. HOWLAND, general manager of the Enterprise Transit Company and Kewanee Oil & Gas Company, has been at the Tulsa offices of the companies for several days. He and J. B. STEELE, Kewanee superintendent in Tulsa, went to Oklahoma City, Okla., for the senate committee hearing on the 8 per cent tax. His home is in Titusville, Pa.

* * *

D. S. SETNAN was re-elected secretary of the Wellington Oil Company at the annual meeting held in Los Angeles, Calif.

* * *

P. H. KUHNS and J. T. HILL, of Ponca City, Okla., with the Continental Oil Company, were in Casper, Wyo., several days last week.

* * *

W. A. CARTER, vice president of the Refiners Marketing Company, Ltd., of Los Angeles, Calif., resigned March 1 to accept a position as merchandising manager for the Kendall Refining Company, of Bradford, Pa.

* * *

FRED S. WRIGHT, district geologist in West Texas for the California Company, has been made a member of the Midland School Board at Midland, Tex., succeeding JAMES S. NOLAND, formerly district land man there for Barnsdall Oil Company, and a trustee, who was transferred to Tulsa.

* * *

HARRY J. BAUER has been elected president of the Automobile Club of Southern California, and ALEXANDER B. MACBETH has been re-elected vice president. A. C. BALCH and W. L. VALENTINE were elected members of the board of directors. Messrs. Bauer, Macbeth, Balch and Valentine have occupied prominent executive positions in the California oil industry for a number of years.

* * *

HENRY WALTERS, assistant to the marketing manager of the Socony-Vacuum Oil Company, Inc., who has been suffering from a prolonged illness, is expected to be back at his desk again next spring. Long a well-known figure in marketing circles, Mr. Walters' absence has been keenly felt by his many acquaintances in the trade. Latest reports are that his health has undergone a marked change for the better.

Had Fine Coaching on His Way Up

Horace L. McQuiston, superintendent of the Phillips Petroleum Company's central division, had excellent coaching on his way up. His first instruction came from his own father, then production superintendent for the South Penn Oil Company in the McDonald (Pa.) Field. After that his successive jobs brought him under the tutorship of George Showalter, now division superintendent for the Mid-Continent Petroleum Corporation in southern Oklahoma; Clyde H. Alexander, afterward vice president and general manager of Phillips; S. G. Oaks, now production superintendent for Sinclair Prairie at Oklahoma City, and other well-known oil men.

HORACE L. McQUISTON

Born in Emlenton, Pa., young McQuiston worked as a roustabout during vacations, and following a course in mechanical engineering in the University of Pittsburgh he got a job as helper on cleanout tools with the South Penn, later becoming cleanout driller. In 1917 he went to Oklahoma, where he served as tooldresser, toolpusher, production foreman and production superintendent for various companies. He was with Philmac Oil Company when that organization merged with the Independent Oil & Gas Company, and he was made production superintendent at Wichita, Kans., under R. B. Pringle, now with Tide Water. Five months later, in 1928, he became general superintendent of production.

Upon the merging of Independent with Phillips in 1930, Mr. McQuiston was made production superintendent in Kansas. In July, 1933, he became superintendent of the newly created central division, including Seminole, Oklahoma City, and the Texas Panhandle, with headquarters in Oklahoma City.

Mr. McQuiston organized the Wichita chapter of the American Petroleum Institute. He is active in Masonry and the Shrine. He married Miss Ethel McCalmont, of Midway, Pa., and they have three children.

WILLIAM SMOOTS, land man at Breckenridge, Tex., for Phillips Petroleum Company, has been transferred to headquarters at Bartlesville, Okla.

* * *

J. BIERMAN, vice president of the Astra Romana Oil Company, the Rumanian unit of the Royal Dutch-Shell combine, was a visitor in Tulsa last week. His headquarters are at Campina, Rumania.

* * *

W. M. GABBERY, sales manager, and ED H. GILL, sales engineer, of the Columbian Steel Tank Company, of Kansas City, Mo., were in Tulsa last week. Mr. Gill will stay in Tulsa as the company's Oklahoma representative.

* * *

NEAL H. ANDERSON, independent oil operator, and formerly California oil umpire, has been elected president of the newly formed Oil Producers Agency of California, a reorganization of the Oil Producers Sales Agency. R. A. BROOMFIELD, JACK DOYLE and RUSH BLODGETT were elected vice presidents and LAWRENCE VANDERLECK and CLIFFORD LORD were elected directors. RALPH B. LLOYD, for several years president of the Oil Producers Sales Agency, resigned to facilitate organization of the new agency.

* * *

A. T. JERGINS, of the A. T. Jergins Trust, and other varied interests, entertained a number of business associates at his annual buffet stag party last week. In addition to GOVERNOR MERRIAM and LIEUTENANT GOVERNOR HATFIELD, Mr. Jergins had as his guests JOHN B. ELLIOTT, EARL C. GILMORE, STATE TREASURER, C. G. JOHNSON, U. S. COMPTROLLER J. F. T. O'CONNOR, BALDWIN F. BALDWIN, LEO CARILLO, film actor and a number of prominent oil operators and distinguished guests.

W. E. SPRAGUE, of Lovell, Wyo., drilling contractor, was in Casper, Wyo., last week.

* * *

M. B. SWEENEY, division manager, has been chosen president of the bowling league organized by Sun Oil Company employes in Dallas, Tex. JOHN McDERMOTT is secretary of the association which includes nearly 100 members.

* * *

OLIVER WHITING, mill representative for the South Chester Tube Company, who has spent the past three years in the East Texas Field, has returned to his home in Marietta, Ohio.

* * *

L. H. CULLUM, independent operator of Wichita Falls, has been elected president of the North Texas Oil and Gas Association. C. W. BOLLER and J. H. S. BONNER were elected vice presidents and FRED H. SEHMAN was re-elected secretary-treasurer.

* * *

W. G. SCHARMANN is at present on a temporary assignment with the International Hydro Engineering Company at The Hague, Holland. His permanent position is that of chemical engineer with the Standard Oil Company of Louisiana, Baton Rouge, La.

* * *

W. T. KNIGHT is recovering from serious burns suffered when a cigaret ignited bed clothing in his room at Mineral Wells, Tex., where he had gone to recuperate from a siege of influenza. Mr. Knight is a well-known independent operator of Wichita Falls, Tex.

* * *

HUGH BURCH was re-elected president of the Grayburg Oil Company at the annual meeting at Artesia, N. Mex. Other officers elected include S. COTTINGHAM, vice president; C. J. DEXTER, secretary and treasurer, and J. W. BERRY, G. U. McCRARY, HOWE WALKER and MARTIN KING, additional directors.

* * *

L. W. STORM, geologist for the Sun Oil Company at Houston, Tex., was the principal speaker at the Houston Geological Society's weekly luncheon the past week.

* * *

A. J. MULLER, executive assistant superintendent of the Humble Pipe Line Company, Longview, Tex., was named president of the Longview Petroleum Club; DOCTOR HILTON was elected vice president; FRED LAWRENCE, treasurer; and BILL DEAN, secretary.

* * *

RAYMOND L. ABEL, professor of petroleum refining at the University of Pittsburgh, has been selected by the U. S. War Department to attend the special three months' course for reserve officers at the Command and General Staff School, Fort Leavenworth, Kansas. Professor Abel is a major in the Chemical Warfare Service Reserve.

* * *

WILLIAM REINHARDT, of Kenda, representing operators in the San Joaquin Valley, on the California Central Committee's sucommittee; JOSEPH JENSEN, of Associated Oil Company, representing operators in the coastal district; and W. H. GEIS, representing operators in Los Angeles Basin, have been busily at work compiling data to support the petition to be filed by California operators for a higher allowable daily production.

* * *

H. B. DICKINSON, scout for the Sinclair Prairie Oil Company, has been transferred from Tyler to Midland, Tex., and O. G. SMITH has been moved from the Tulsa office to Tyler to scout for the company in the East Texas district. GEORGE JOHNSON, formerly district land man for the company, has been transferred to Wichita, Kans., being succeeded at Tyler by LEE GOWER who has been district land man at Corpus Christi, Tex.

NATURAL GAS DEVELOPMENTS

Up to Texas, Ickes Says of Panhandle Gas Project

WASHINGTON, D. C., Mar. 4.—Public Works Administrator Ickes says the next move in the proposal to utilize Panhandle natural gas is plainly up to backers of the suggested project. At the same time, he does not see how an authority to administer control and use of the gas could be a federal project.

"I understood it was to be a Texas authority, not a federal authority," he said.

Asked what he had decided to do about the proposal to allot from $30,000,000 to $50,000,000 to lay pipe lines for carrying the gas northward for domestic consumption, he declared there is nothing he can do until Texas acts.

"We have no formal application," he explained. "We have nothing to approve."

The administrator said he has talked with Congressman Marvin Jones of Amarillo about the congressman's suggestion that the gas be used to develop power for rural areas in the Southwest, and that he is considering this proposal.

Mr. Ickes suggested that backers of the proposed power development make a detailed survey and submit to him complete information on how the project could be initiated and developed.

Construction of a federally owned and operated pipe line to carry natural gas from the Texas Panhandle to Middle Western cities has been recommended in a resolution adopted by the Public Ownership League of America.

The resolution, offered by L. J. Scheer, assistant to President John W. Smith of the Detroit city council, charged there is evidence of "a conspiracy among major natural gas interests to create and maintain an unlawful monopoly in the production, transportation and distribution of natural gas through unfair discrimination against independent producers, wanton destruction of pipe line competitors, and restriction of use of natural gas at reasonable rates."

Construction of the government pipe line, the conference resolved at its final session, "would end the waste of natural gas, reduce rates, break monopoly's stronghold on the industry, as well as provide thousands of men with jobs on a self-liquidating project."

The public ownership conference urged a joint Senate and Federal Trade Commission investigation of the natural gas industry and enactment of the pending bill against public utility holding companies.

BOW ISLAND GAS STORAGE

LETHBRIDGE, Alberta, Mar. 2.—P. D. Mellon, chief engineer of the Canadian Western Natural Gas, Light, Heat & Power Co., of Calgary, states that nearly 7,000,000,000 feet of gas from the Turner Valley Field has been stored in the exhausted wells of the Bow Island Field. Repressuring operations are being continued at the rate of approximately 5,000,000 feet a day.

GAS AT JAMESTOWN

JAMESTOWN, N. Y., Mar. 2—Thirty miles from the nearest oil or gas production, Moonbrook Oil & Gas Syndicate has a 1,000,000-foot gasser on North Main Street extension just beyond the city limits, at a depth of 900 feet.

LONDON GAS PROPOSITION

LONDON, Ontario, Mar. 2.—The London city council has endorsed the proposal that the City Gas Co. and the municipality apply to the Ontario legislature for the right to hold a special franchise election.

Governor Allred Explains His Plan for Piping Panhandle Gas to Detroit

AUSTIN, Tex., Mar. 4.—Governor James V. Allred made the following statement regarding a proposed line to pipe Texas gas to points outside the State:

"Recent statements by Secretary of the Interior Harold L. Ickes indicate that the PWA is waiting for Texas to take the initiative in obtaining a $60,000,000 loan in order to construct two steel pipe lines from the Texas Panhandle Field to St. Louis and Detroit.

"Considerable progress already has been made toward achieving this end. A special committee, appointed by me, began the consideration of the plan. It consisted of an engineer, a geologist, a marketing and industrial expert and two attorneys. After preliminary plans had been worked out, R. B. Anderson went to Washington as my representative to lay the project before the Secretary of the Interior. It was warmly received by the national administration and Mr. Ickes a few days later told the Appropriations Committee of the House that part of the proposed work relief bill might be used to finance the proposal. A few days later, Mr. Ickes issued a second statement in which he pointed out that the project afforded considerable relief in the form of work on a permanent project, and furnished a much needed stimulus to the basic steel industry in the United States.

"After Mr. Anderson returned to Texas the governor's committee continued their work on the project with particular emphasis upon the probability of showing liquidation.

"The cities of St. Louis and Detroit have been contacted by my representative and have evidenced considerable interest. The executive vice president of the American Light & Traction Co., Chester N. Chubb, conferred with me and members of the committee in Austin last week and offered to go with the Texas engineers to Washington to advise with the PWA concerning the loan.

"About two weeks ago I sent a representative to St. Louis to confer with officials there, and the proposal was welcomed by the city officials who are attempting to eliminate the evil of excessive smoke, and at the same time obtain a new cheap fuel. Last week Everett L. Looney discussed the plan with the aldermanic investigators in St. Louis and conferred with representatives of the LaClede Gas Light Co. The St. Louis Post-Dispatch, in an editorial comment on Mr. Looney's visit, extended a welcome to Texas in its proposal.

"Mr. Anderson will leave Austin for St. Louis to confer with engineers from Detroit with reference to the project. This conference is being held at the request of the St. Louis and Detroit officials, who are anxious to learn more about the details of the proposed plan.

"An adequate gas reserve to supply the line has already been arranged for in Texas.

"It is thus to be seen that with an adequate supply already obtained in Texas, it is necessary only to complete arrangements for a satisfactory market in St. Louis and Detroit. Both of these cities have a present market for more than 20,000,000 feet of gas per day, which would equal the capacity of the proposed pipe line. It is not to be forgotten in this connection that the line would pass several cities between Texas and St. Louis and through five cities between St. Louis and Detroit with more than 500,000 population.

"It is interesting to note that every federal and state official and every private concern that has been contacted with reference to the proposed gas line project has received it with enthusiasm.

"A bill is now being drafted by the governor's committee and is nearing completion, for the purpose of establishing a public corporation or authority to build the line and to own the property. The project does not contemplate the bonding of the State or the pledging of any state assets. It contemplates merely a loan to a public corporation, secured by the building of the line and anciliary compressing stations necessary to transport the gas.

"There are no legal difficulties that will seriously impede the progress of the plan. It will be necessary for the state legislature to authorize the establishment of the public corporation. The net profit from the project will become a part of the State's general revenue fund. The project offers a possibility of realizing a considerable profit from Texas gas, both to the State and to the landowners, and at the same time offers an opportunity to Texas to demonstrate the actual cost of establishing a major gas transmission line and the cost of transporting natural gas to domestic markets.

"Perhaps the outstanding feature of the proposal is the fact that it will eliminate a waste problem in the Panhandle Field, solving at the same time the problem of ratable production and will greatly increase the value to the landowners of the gas thus afforded the domestic and power market.

"St. Louis and Detroit are the two largest cities in America without available natural gas supplies. They are at present being furnished manufactured gas at, of course, a tremendously higher cost than natural gas could be furnished to them. There are other large cities in the North which could be furnished with natural gas which are likewise using manufactured gas. The laying of this line would not put the Texas project into actual competition with any existing pipe lines."

Wichita Falls Rate Cut Stayed by Injunction

AUSTIN, Tex., Mar. 4.—District Judge Charles A. Wheeler, Thursday, granted Municipal Gas Co., Wichita Falls, a temporary injunction to restrain enforcement of rates ordered by the Texas Railroad Commission, effective March 1, reducing the domestic gas rate of Wichita Falls from 67½ to 61 cents. Hearing was set April 1 on making the injunction permanent. The injunction also stayed for the present the Railroad Commission's order that $130,000 in refunds, since the city by ordinance in 1932 directed a reduction in the gas rate, be paid to the city for return to consumers.

Under the present law, when the company's appeal is perfected, the case must be tried anew in district court. The company pleaded that it is under contract with Lone Star Gas Co., and that a Travis County jury last year decided, in the Lone Star Co. case, that Lone Star should not be required to lower its 40-cent gate rate to 32 cents for approximately 300 Texas cities and towns.

Texas Oil Men Doubtful of Proposed Pipe Line

DALLAS, Tex., Mar. 4.—In connection with the proposed building of two new pipe lines to Detroit and other eastern cities, Texas oil men think that one of the existing pipe lines from the Panhandle pumping gas almost to Detroit had only a 20 per cent load and could probably be bought more cheaply than a new one could be built. The line is known in Texas as the Panhandle Eastern and in other sections as the Missouri-Kansas.

It is said the builders of the existing lines after the construction stage usually have a long campaign to find customers to build up their load at the other end. Though the gas is a desirable fuel, potential users hesitate to scrap installations to burn other fuels and install gas-burning equipment, while even householders are reluctant to install piping, etc., to change from coal or oil fuel to gas. In some places, too, artificial gas companies owning the distributing systems will not change over entirely to natural gas, preferring to purchase some natural gas to enrich their artificial product and market the mixture.

The gas pipe lines, unable to go to the expense of installation of entire distributing systems in cities where most of the streets are paved, and consequently shut off from domestic customers, are forced to sell to the existing utilities at comparatively low rates. This, and the rates quoted potential industrial users to entice them away from other fuels, has resulted in an unfavorable "load-price factor" for these lines, even where a better load has been built up than in the line cited.

It is considered that a new pipe line must count on a number of lean years when entering territory not equipped for natural gas, such as the project outlined at Austin, and for that reason it is believed by oil men that the state authority could buy an existing line encountering lean times cheaper than constructing new ones.

Columbus, Ohio, Officials Encourage St. Louisans

ST. LOUIS, Mo., Mar. 4.—Natural gas can be supplied St. Louis consumers for one-third the present rate charged here for mixed manufactured-natural product, a gas investigating committee of aldermen has been assured by Mayor Henry W. Worley, of Columbus, Ohio, and H. R. Allensworth, consulting engineer of that city. Mayor Worley and Mr. Allensworth made a special trip to appear before the committee.

Basing their assumption on a statement that natural gas may be piped from Texas to St. Louis' gate for 18 and 20 cents per 1,000 feet, ultimate cost to consumers would be about 55 cents per 1,000 feet, or one-third of the present average cost of domestic gas here, they said.

INDIANA ASKS GAS PROBE

WASHINGTON, D. C., Mar. 4.—A resolution passed by the Indiana general assembly memorializing Congress to authorize an investigation of the natural gas industry, was presented to the Senate by Senator Van Nuys, Democrat, Indiana.

TEXAS CASES POSTPONED

AUSTIN, Tex., Mar. 4.—Arguments scheduled before the Third Civil Appeals Court in two gas rate cases, involving city gate rates of the Lone Star Gas Co., and the rates charged consumers in Laredo by United Gas Co., have been postponed until April 10.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depths of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannnot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Hole Diameter of No Consequence in Finding Column Pressure

If you have a 6-inch hole 500 feet deep full of water, what will be the pressure of this column of water at the bottom of the hole?—A. H. W.

The pressure exerted by a fluid column is usually expressed in "pounds per square inch" and the diameter of the hole is therefore of no consequence. If the bursting strength of pipe is considered it is also based upon the "pressure per square inch" expressed in pounds.

Fluid—	Specific gravity	Lbs. per sq. in. per ft. of height
Pure water	1.000	.433
Salt water	1.100	.477
Salt water	1.154	.500
Salt water	1.200	.520
Salt water	1.250	.542

(.433 × 500 = 216.5 lbs.)

It will be noted that the pressure in pounds per square inch per foot of height for fluids other than pure water may be estimated by multiplying pounds pressure per foot of height given for water (.433) by the specific gravity of the other fluid and the answer is the weight of the other fluid expressed in terms similar to those given for water.

For example, salt water with a specific gravity of 1.200 exerts .520 pound pressure per foot of height and .433 × 1.2 = .5196, or practically .520.

If the specific gravity of a mud is known the pressure it will exert may be likewise calculated. Eight-pound per gallon mud (59.8 pounds per cubic foot) has a specific gravity of .96 and exerts a pressure of .416 pound per square inch for each foot of fluid head while 16-pound per gallon mud weighs 119.7 pounds per cubic foot and has a specific gravity of 1.92 and exerts a pressure of .851 pound per square inch per foot of fluid column height. The other weight muds range between these two figures.

Formation pressures are calculated in pounds per square inch also because if they were not reduced to this basis it would be impossible to determine the weight of fluid column which the formation would sustain. It makes no difference about the depth of the hole opposite a producing formation because the depth of this formation below the surface will determine the height of the fluid column that can be sustained by the formation pressure.

To illustrate, if a sandy formation is penetrated at a depth of 2,000 feet below the surface and the hole filled with pure water the pressure exerted upon the formation would be approximately 866 pounds per square inch. If this hole were filled with 35 A.P.I. gravity crude oil, having a specific gravity of 0.85 the fluid column would exert a pressure of .368 pound per square inch per foot of height, or for 2,000 feet about 736 pounds per square inch at bottom of hole.

If this formation can deliver this gravity of oil to the surface of the well the pressure within the formation must be in excess of 736 pounds per square inch. How much in excess of this pressure may be determined by running a pressure instrument to a point opposite the formation or approximated by shutting in the well and reading the gauge pressure at the well head. The gauge pressure at the well head plus the estimated weight of the fluid column above the formation will give roughly the pressure within the formation although this method is not as accurate as running a pressure instrument because there are several variables to be considered when estimating the weight of a fluid column consisting of oil and gas that has been produced from a formation.

It is hoped that these general statements will be of interest to you because not knowing more in detail the purpose of your question, it has been necessary to assume many things.

Mission Performed by Casing and Tubing in Completing Wells

What would be the diameter of each of say four strings of casing in a well 5,000 feet deep? I take it that if the well were a gusher the "flow string" would be the last one used. Perhaps I should not go to you with such rudimentary questions, but this whole subject of casing and tubing is rather confusing to me.—H. H.

There are several classes of pipe used in the oil field, and in the oil or gas well it is customary to use casing to shut off water formations and support the wall of the hole and tubing through which to produce the oil or gas, or both, from the formation.

In cable-tool drilling it has been customary to set a string of casing after penetrating each water formation and for this reason the mechanical procedure of drilling a well by rotary varies because with rotary drilling an attempt is made to seal off water formations with the mud fluid and set only a minimum number of strings of casing which are intended primarily to support the walls of the hole and prevent caving.

It has been found advisable to vary the size, weight and length of the various strings of casing used in the different fields so there is no uniform casing program.

The American Petroleum Institute has done much to eliminate the great number of different weight strings of casing; also the different types of threads and couplings and the industry now usually specifies A.P.I. casing.

So it is quite impossible to answer your question as to diameter of each of the strings in a 5,000-foot hole, and the only thing that can be said is that each string of pipe will fit inside the next string above and when they are all in place you have what is called a completed well.

If the well will flow through the inside string of casing it is of course desirable to produce it in that way. As the well is produced formation pressure and volume of gas decrease so that in time the well will no longer be produced by the natural energy contained within the reservoir. Then it is the usual practice to run a string of tubing which may be used for producing the well by gas lift or by pumping.

It is true, however, that a string of tubing may be run in the well as soon as the inside string of casing has been set and the drill has penetrated through the producing formation the required depth. The purpose of running the tubing in this event is to provide a medium through which fresh water may be added to the rotary mud left in the hole after drilling has been completed and to aid in removing this mud and relieving the pressure exerted against the formation at the bottom of the hole.

After the well has been "washed in," the tubing string may be withdrawn or left suspended until such time as it is decided to produce the well by introducing gas lift or pumping.

Why Was It Called That?

THUMBS DOWN

The geological or land department of an oil company which decides against participation in the development of a prospective pool (more especially if it advises against contributing "dry hole money") is said to turn thumbs down on the area under consideration. The expression sometimes is used also to denote an operator's determination not to drill a wildcat hole any deeper. "Thumbs down" always signifies disapproval. It is a survival of the gladiatorial combats which provided a popular form of sport in ancient Rome. When a gladiator had been vanquished his victorious adversary looked to the emperor or the people for directions. Thumbs held downward meant the defeated fighter should be put to death. Thumbs up (or waving of handkerchiefs according to some historians) were a sign that his life should be spared.

Few Wells on Pump in Conroe; No Water Problem Expected

Are any of the wells in the Conroe Field being produced by pumping or are all of them still flowing? Have petroleum engineers made any estimate as to the probable life and total recovery of this field? Is drilling still under way or has the field been entirely drilled up? Has water appeared in sufficient volume to cause trouble? If so, how is it disposed of in that region?—N. S. E.

At the present rate of production and pressure decline it has been estimated that the flowing life of Conroe will be at least 15 years and that a total of more than 580,000,000 bbls. will be recovered. Theoretically, all the oil will be recovered by flowing and this may be largely true from the main producing horizon.

A recent report showed nine wells on artificial lift. Most of these wells were believed to have been completed in the upper Cockfield sand, which is about 15 feet thick, overlying the Conroe, or main reservoir, at an interval of around 150 to 175 feet. Over the main part of the field this sand carries only gas, the oil being found in a narrow strip downdip around the edges of the field. In this sand several small low pressure areas have developed, principally on the extreme southeast end of the field.

The field has been completely drilled up with an orderly production provided for from a uniform well spacing and proration standpoint and operators are cooperating in a definite program to attain further ideal conditions by correction of mechanical or other local troubles in their respective wells. While every effort has been made to drill and complete all wells properly in regard to the most efficient production of the reservoir, many wells were drilled before operators were familiar with all the conditions, consequently some of those wells have been found important in the light of what is known now.

In view of the plan which is being adopted of plunging back wells as fast as water appears, theoretically there never will be any appreciable water production at Conroe. It is particularly desirable there that production of water be prevented entirely or curtailed to a minimum as the disposal of any great volume of water would present a problem of a serious nature. There are no nearby streams of sufficient capacity to handle the water so that it could be run off, and at the same time the climatic conditions are such on the Gulf Coast that evaporation run-off plan, would not be feasible. It is possible that a salt water canal could be excavated to the Gulf or a salt water pipe line laid but such projects would be costly.

So far the production of water has not been of such extent as to prevent any difficulties of disposal. It recently was reported that only 34 wells had made any water and in most of these the percentage was small. Six of the 34 wells had been plugged back successfully and were entirely clear. Attempts were made to plug back three others but these were failures, principally because they were edge producers and too close to the water level. These either have been abandoned or shut down and consequently are off the water list. Five others also are dead, standing, or else working over.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended Feb. 28 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
57	48½	1,000	55¾	54¼	55¾	Amerada Corp.	774,875	N.P.	50cQ	1-31-35	$2.00	55⅝	39	47⅝	18½
25⅝	23	4,200	23⅝	23⅛	23⅛	Atlantic Refining	2,673,834	$25	25cQ	3-15-35	1.00	35¼	21½	32½	12⅝
7	6	3,100	6⅜	6	6¼	Barnsdall Corp. A	2,248,795	$5	....	5-11-31	....	10	5⅞	11	3
7¾	4½	37,400	5¼	4½	4⅞	Columbia Gas & Elec.	11,610,036	N.P.	....	5-15-34	‡ .25	19¼	6⅝	28⅛	9
8¾	7⅜	20,400	7⅞	7½	7⅝	Consolidated Oil Corp.	14,218,835	N.P.	14c	10-31-34	.42	14¼	7¼	15⅜	5
19⅛	16⅜	11,600	17⅝	17⅛	17⅝	Continental Oil of Delaware	4,738,593	$5	25c	10-31-34	.50	22⅜	15¾	19⅝	4⅞
18⅞	14¾	2,300	15⅝	14¼	14¾	General Asphalt	387,149	$10	....	6-15-32	....	23½	12	27	4⅝
3⅜	2⅝	900	2¾	2¾	2¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	5⅝	2½	7⅜	1⅞
1⅞	1	800	1⅛	1	1	Louisiana Oil Refining	1,302,158	N.P.	....	.....	....	3⅜	¾	4	⅝
12⅞	10½	2,000	11¼	10½	11¼	Mid-Continent Petroleum	1,857,912	$10	25c	11-15-34	.50	14¾	9⅛	16	3¾
14⅝	11	No sales ..	..	..	..	National Supply of Delaware	382,591	$25	....	5-15-31	....	21⅛	10	28⅝	4
10⅞	9½	4,600	10	9⅝	9⅞	Ohio Oil Co.	6,563,107	N.P.	15c	12-15-34	.45	15⅞	8½	17⅝	4¾
8¾	7	4,900	8¾	7⅝	8⅛	Pacific Western Oil	1,000,000	N.P.	40c	11-30-34	.40	9⅜	5½	9½	3
1⅜	⅝	500	⅝	⅝	⅝	Panhandle P. & R.	198,770	N.P.	....	.....	....	2½	⅝	4¼	⅜
16	14⅛	11,700	15	14½	15	Phillips Petroleum	4,154,687	N.P.	25c	3-1-35	1.00	20¾	13⅜	18¾	4¾
8¾	7	5,800	8⅛	7	8⅛	Plymouth Oil Co.	1,014,082	$5	4% Stk.	12-22-34	75c & 4% Stk.	16⅜	7¼	17⅝	6¾
7¾	6⅝	5,500	7	6⅝	6¾	Pure Oil	3,038,370	N.P.	....	9-1-30	....	14⅞	6⅛	15⅜	2½
32⅜	29¾	2,000	31⅛	30¼	31⅛	Royal Dutch N. Y. shares	432,224	$14	$1.35	7-31-34	1.35	39½	28⅝	39¾	17⅝
26⅞	21	2,400	24½	23	23¼	Seaboard Oil of Delaware	1,204,460	N.P.	15cQ†	3-15-35	1.00	38⅜	20¾	43⅜	15
7⅞	6⅜	3,700	6⅝	6⅜	6⅜	Shell Union Oil	13,070,625	N.P.	....	6-30-30	....	11½	6	11⅝	4
78¾	68¾	600	71	69½	71	Shell Union Oil pfd.	400,000	$100	....	7-1-31	....	89	57	61	28½
18¾	15	4,200	16⅝	15⅜	15¾	Simms Petroleum	461,698	$10	50c	2-1-35	.55	17⅛	7¼	12⅜	4⅞
8	6½	300	7⅞	7¾	7⅞	Skelly Oil	1,008,514	$25	....	12-15-30	....	11½	6	9⅞	3
14⅞	12⅞	19,700	13½	12⅞	13⅛	Socony-Vacuum	31,019,694	$25	15cQ	3-15-35	.60	19⅞	12½	17	6
32⅜	29¼	8,600	30⅞	29¼	29¼	Standard Oil of California	13,102,900	N.P.	25c	3-15-35	1.00	42⅞	26½	45	19½
25¼	23¾	9,000	24¾	24⅜	24⅜	Standard Oil (Indiana)	15,941,894	$25	25cQ	3-15-35	1.00	32¾	23¼	34	17
32	29⅞	No sales ..	..	..	..	Standard Oil of Kansas	200,000	$10	50cQ	10-31-34	2.00	41	26	39⅞	12¾
43½	38	16,200	40	38⅞	38⅞	Standard Oil of New Jersey	25,740,065	$25	50cSA†	‖3-15-35	1.25	50⅛	39¼	47½	22¾
68½	65	200	67⅝	66¾	67⅝	Sun Oil	1,733,013	N.P.	25cQ	3-15-35	$1 & 9% Stk.	74¼	51½	59	35
21⅝	19	7,400	20	19½	19½	Texas Corp.	9,486,417	$25	25cQ	4-1-35	1.00	29⅜	19⅝	30⅛	10¾
4¼	3¼	500	4	3¾	3⅞	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	....	6½	2½	6½	1⅝
10	8⅜	7,000	9	8⅜	8⅝	Tide Water Associated	5,618,672	N.P.	....	2-16-31	....	14⅜	8	11¾	3⅛
87½	84	1,400	87½	86½	87½	Tide Water Associated pfd.	666,524	$100	$2§	4-1-35	§8.50	87	64½	65¼	23½
16⅜	14¾	2,800	16¼	15⅞	16⅛	Union Oil of California	4,386,070	$25	25cQ	2-9-35	1.00	20½	11½	23⅜	8½
26⅛	24½	800	25¼	24¾	24⅞	Union Tank Car Co.	1,200,000	N.P.	30cQ	3-1-35	1.20	25¾	15⅝	22¾	10½
2⅝	2	1,500	2⅛	2	2⅛	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¾	2	5½	2

*Ex-dividend. †Plus extras. ‡Payable in preferred stock. §On account of accumulated and current dividends. ‖Distribution 4/75 Mission Corp.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended Feb. 28 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
33	30½	300	32½	31	32½	Buckeye Pipe Line Co.	200,000	$50	75cQ	3-15-35	$3.00	38	26	39¾	25
2⅜	1¾	700	1¾	1¾	1¾	Carib Syndicate	799,020	25c	....	.....	....	5½	1½	7¾	¼
157	140	No sales ..	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1Q†	3-29-35	11.50	150	116	129	71
1½	1	43,400	1¼	1	1	Cities Service	37,804,394	N.P.	....	6-1-32	....	4¼	1¼	6¼	1½
⅛	⅛	300	⅞	¾	¾	Colon Oil	2,200,000	N.P.	....	.....	....	3¼	½	4	¼
⅞	⅝	No sales ..	..	..	..	Cosden Oil	399,687	$1	....	.....	....	3⅞	½	3⅞	1⅝
13⅜	10⅞	4,600	11⅜	10⅞	11⅜	Creole Petroleum	6,974,356	$5	....	.....	....	14⅜	9⅝	12	4¾
4⅞	4½	No sales ..	..	..	..	Darby Petroleum	509,696	$5	25c	1-25-35	.50	7½	4⅛	8	2⅛
1⅛	⅛	No sales ..	..	..	..	Derby Oil & Refining	263,162	N.P.	....	.....	....	2¼	1	2¾	⅞
38	34	No sales ..	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	2-1-35	4.00	37	30	41¾	20
60⅞	55	3,000	56½	56	56¼	Gulf Oil Corp.	4,538,101	$25	....	10-1-31	....	76¾	49¾	62	24
50¾	44	4,500	49	47⅞	48⅝	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	4-1-35	§1.25	496	33¼	105½	40
17⅛	16⅛	6,300	16⅞	16½	16⅝	Imperial Oil of Canada	26,857,152	N.P.	25cSA†‡	12-1-34	.92½	17⅞	12⅝	15⅞	6½
4½	3¾	100	4⅛	4⅛	4⅛	Indiana Pipe Line	300,000	$10	15cSA†	11-15-34	.35	6⅞	3⅝	8	3⅛
31⅜	28⅞	7,300	30⅝	30	30⅛	International Petroleum	14,247,088	N.P.	15cSA†‡	12-1-34	2.28	33⅜	19⅜	23½	8⅞
6	4⅝	8,800	5⅞	5⅜	5⅜	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	....	5	2⅛	2¼	⅞
4⅜	3⅝	No sales ..	..	..	..	Lion Oil Refining	270,000	N.P.	....	10-27-30	....	6	3⅜	9½	1¼
1¼	4⅞	800	5⅛	4⅞	5	Lone Star Gas	5,382,723	N.P.	15c	2-15-35	‖ .16	8⅜	4¼	11⅞	4¾
4⅝	4⅛	1,500	4¼	4⅛	4⅛	Mountain Producers	1,682,182	$10	15cQ	1-2-35	.60	5½	4	6½	2½
14	13	1,300	13⅜	13	13	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-34	1.00	18⅛	13⅛	20	10
8	6⅝	300	7⅝	7½	7⅝	National Transit	509,000	$12.50	35cSA	12-15-34	.75	9½	7	10	5½
2⅝	2	300	2	2	2	New Bradford Oil	1,445,202	$5	10cSA	3-15-35	.20	2½	1¾	2⅛	½
2⅛	1⅜	500	1½	1½	1½	New Mexico and Arizona	1,000,000	$1	....	.....	....	2⅜	1	1⅞	½
3⅝	3¼	No sales ..	..	..	..	New York Transit	100,000	$5	15cSO	10-15-34	.30	4¾	3	4⅞	3
5⅝	5¼	No sales ..	..	..	..	Northern Pipe Line	120,000	$10	25cSA	1-2-35	.50	7	4⅝	6⅛	4¼
2⅛	1½	4,200	1⅞	1½	1⅝	Pantepec Oil	1,608,700	N.P.	....	.....	....	2⅝	⅞	3⅜	⅛
1¼	1⅛	100	1¼	1¼	1¼	Ryan Consolidated	296,931	N.P.	....	.....	....	3⅜	⅞	4¼	⅝
6¼	5¾	700	6	5¾	5⅞	Salt Creek Producers	1,496,859	$10	20cQ	2-1-35	.80	7⅞	5½	9¼	3½
23¾	22¼	1,400	23¼	23	23¼	South Penn Oil	1,200,000	$25	30cQ	3-30-35	1.20	26½	17½	22⅛	11
4	3⅞	100	4	4	4	Southern Pipe Line	100,000	$10	15cSA	3-1-35	.25	5½	3½	6	2⅛
52½	45¼	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	12-31-34	5.00	47	41	43	24½
21⅝	18	3,500	20⅞	20⅛	20⅛	Standard Oil of Kentucky	2,606,983	$10	25cQ†	3-15-35	1.50	18⅜	14⅝	19¼	8⅝
9	8¼	400	8½	8¼	8¼	Standard Oil of Nebraska	190,822	$25	....	6-20-34	.50	16⅞	8¼	20½	11
16¼	13	1,450	14	13¼	14	Standard Oil of Ohio	753,740	$25	....	1-3-33	....	28½	12¼	41	15½
1¼	1	300	1⅛	1⅛	1⅛	Sunray Oil	1,610,810	$1	....	4-15-31	....	2	⅛	1½	¼
6⅞	5⅝	1,100	6	5⅞	6	Texon Oil & Land	936,028	N.P.	15cQ†	12-29-34	.90	11	4⅜	13¾	6¼

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Includes 50 cents on old $25 par value stock. ‖Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Federal Tender Board in Texas Expected to Improve the Retail Price Structure

By SPECIAL CORRESPONDENT

CHICAGO, Mar. 4.—Much relief was evident among refiners in this market as the week opened because of the fact that after some delay the Federal Tender Board had been set up again in East Texas. General feeling here now is that this is about the final preparatory stroke in the plan to improve the tank car gasoline price structure for the Mid-Continent region. This plan involves, according to present outlines, considerable refiner buying of surplus gasoline over the coming months. Market tone was stronger, prices firmer.

Commercial Competition

It is generally indicated that the most of the recent spotty trouble in tank wagon-service station markets, such as is noted in Chicago, has been a recurrence of discounts being given to large commercial consumers. It is indicated a large seller may resume distribution of a special high-octane gasoline at attractive prices to protect its position. Commercial consumers are holding out in many cases for better price quotations on their purchases than in the past. This is especially true around the Kansas City, St. Louis, Omaha, Sioux City, Des Moines, Chicago, Milwaukee districts and some other metropolitan centers. There is easiness in high gravity gasolines currently.

Kerosene

Kerosene has been the strongest spot in the tank car market for some time and higher prices are being predicted for it by some refiners. The demand for spring farm purposes is expected to be quite large, and should be making its appearance in force soon. In fact, mild weather is already bringing some business. With supplies in relatively firm control, the tone remains good and not affected by sluggishness in the distillates, etc.

Heating Oils

The heating oils have been forced into a somewhat weakened position and in defense to move material, some sellers have been naming fractionally lower prices. Even this is not bringing out many orders from distributors, who report consumers' fill-up business is not very active at this time.

Industrial Oils

Trade has been quite slow for some time in the heavy industrial oils, and it remains so. Steel industry takings are again somewhat reduced, with the edge off mill operating rates, at least for the time being. Pick-up in Diesel oil demand for new industrial uses is still not very important marketwise, while gas oil business has been slow.

Lubricants

Lubricants remain rather dull, although fairly firm at this time, due to better reports from primary markets. Motor oil business has been fair, and is expected to pick up from now on.

Wax

News in the wax market is not very encouraging. New business is slow, buyers holding out for lower prices. Stocks remain unwieldy and apparently still increasing somewhat. Some reduction in output is indicated.

Naphthas

Solvents and naphthas are generally marking time. Demand has not improved particularly and while most sellers continue to hold quotations at unchanged levels, there is some indication of shading.

Coke

Petroleum coke is unchanged in moderate demand.

Crude Oil Prices

(Continued from Page 29)

Humble Oil & Refining Co. and Texas Co. Effective September 20 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles, light (Sept. 29, 1933)	$.96
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.80
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 29, 1933)	See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Sept. 29, 1933)	.62
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Lance Creek (Dec. 16, 1932)	.92
Hudson (June 2, 1931)	.65
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome, all grades (Feb. 16, 1935)	.57
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera (Sept. 29, 1933)	1.25
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro. Hamilton Dome, Wyo., by Stanolind Oil & Gas Co. Pondera, Mont., by Ohio Oil Co. (Stanolind Oil & Gas Co., effective January 1, 1935, posted $1 per barrel in Pondera.)

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos, Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 28, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urbana posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co. Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective Feb. 4, 1935)

Bradford, Pa.	$2.35
Allegany, N. Y.	2.35

SOUTH PENN OIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.02
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.97
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.87
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.37

PENNZOIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.)	$2.27
Group B (Includes Titusville district.)	2.26
Group C (Includes Turkey and Tidioute districts.)	2.25
Group D (Includes Bear Creek and Porkey districts.)	2.24
Group E (Includes Edeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emienton, Tiona, Lacey and Kinsua districts. Price depends on length of pipe line haul to plant at Oil City.)	2.21

PURE OIL CO.
(Effective Jan. 4, 1935)

Cabin Creek, W. Va.	$1.83
Bradford Hollow, W. Va.	1.83
Kelly Creek, W. Va.	1.77

CREW-LEVICK CO.
(Effective Jan. 4, 1935)

Oil City-Titusville	2.13

Middle Western States

OHIO OIL CO.

Lima (Feb. 1, 1935)	$1.16
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky (May 26, 1934)	1.03
Midland, Mich. (Sept. 30, 1933)*	1.02
West Branch, Mich.	.86
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23

*Posted by Pure Oil Co. and Simrall Pipe Line Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted prices. West Branch, Mich., posted by Simrall Pipe Line Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (May 21, 1934):†	
Clear naphtha	$2.55
Discolored naphtha	2.37
Crude oil, 50 gravity	2.19
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Mexico

Panuco*	$1.01

*F.o.b. ship, based on January transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	MontebeHo	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.66
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.92	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.02	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Mountain View—Effective July 3, 1934, the following are the prices of the Standard Oil Co. of California for its current purchases of crude oil at the well in the Mountain View Field: 14 to 19.9 degrees, 57 cents; 20-20.9, 58 cents; 21-21.9, 59 cents; 22-22.9, 61 cents; 23-23.9, 63 cents; 24-24.9, 66 cents; 25-25.9, 69 cents; 26-26.9, 72 cents; 27-27.9, 75 cents, 28-28.9, 78 cents; 29-29.9, 81 cents; 30-30.9, 84 cents; 31-31.9, 87 cents; 32-32.9, 90 cents; 33 degrees and above, 93 cents.

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchases, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33--33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 36 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Kansas Wildcats

(Continued from Page 71)

Sec. 16-22-2w.
Spudded and S.D.

Wenzel et al's No. 1 Schrag, NW SE Sec. 24-22-2w.
T.D. 587 ft.; S.D. for csg.

KINGMAN COUNTY

Magnolia Pet. Co.'s No. 1 Bartholomew, SE SE SW Sec. 30-27-4w.
Viola 4,102 ft.; drlg. 4,109 ft.

MARION COUNTY

Youker et al's No. 1 Bernhardt, C SE NW Sec. 7-18-4.
T.D. 945 ft.; running 12-in. pipe.

McPHERSON COUNTY

Brosius et al's No. 1 Hanson, NE NE SW Sec. 15-17-2w
S.D. 105 ft.

Carey & Miller's No. 1 Husband, SE SE NW Sec. 6-19-3w.
Moving in material.

Johnson & Carey et al's No. 1 Dyck, SE NE SE Sec. 35-23-4w.
Wilcox 3,968-85 ft.; set 6-in. 3,968 ft.; Drilled plug; H.F.W.; P.B. to 3,978 ft.

Lario O. & G. Co. et al's No. 1 Schreg, NW SE SW Sec. 22-19-4w.
Wilcox 3,804 ft.; H.F.W. at 3,818 ft.; drlg. 3,857 ft.

Lario O & G. Co.'s No. 1 Base, SW cor. Sec. 22-20-2w.
Wilcox 3,495 ft.; H.F.W. 3,505-10 ft., T.D.; fishing.

Palmer Oil Corp.'s No. 1 Swenson, NE NE SW Sec. 11-18-2w.
Set 15-in. pipe 70 ft.; drlg. 1,100 ft.

L. W. Prunty et al's No. 1 Davis, NE cor. Sec. 6-22-1w.
Chat 2,922 ft.; drlg. 2,928 ft.

Shell Pet. Corp.'s No. 1 Wenger, NE cor. Sec. 2-20-1w.
Rigged up.

Stafford et al's No. 1 Krehbiel, NW NW SE Sec. 27-21-3w; (O.W.D.D.).
C.O. at 2,080 ft.

NESS COUNTY

Phillips Pet. Co.'s No. 1 Young, C NW SW Sec. 13-18-21w.
S.D. 75 ft.

Texas Co. and Gypsy Oil Co.'s No. 1 Goodman, C SW SW Sec. 21-19-23w.
Set 5-in. csg. 4,589 ft.; drlg. 4,742 ft.

RENO COUNTY

Bradley's No. 1 Olmsted, SW SW SW Sec. 22-22-7w.
Moving in material.

Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.
T.D. 1,255 ft.; S.D.

Kessler, Their and Skelly's No. 1 Bigger, NE SE SW Sec. 29-23-4w.
Siliceous 4,141-50 ft.; dry and abd.

Privett Drlg. Co.'s No. 1 Crotts, NE NW NE Sec. 27-26-10w.
8-in. 3,498 ft.; H.F.W. 3,632-42 ft.; S.D. 3,712 ft.

RICE COUNTY

Allison & Fitzwilliams et al's No. 1 Stumps, NW NW SW Sec. 4-18-10w.
10-in. csg. 1,850 ft.; drlg. 2,075 ft.

Bradley's No. 1 Olmstead, SW SW SW Sec. 22-22-7w.
Moving in material.

Day et al's No. 1 Mason, NW NE NE Sec. 28-21-7w.
Building rig.

Day's No. 1 Mason, NW NE NE Sec. 28-21-7w.
Moving in material.

Foraker, Nickerson et al's No. 1 Lyons, SE NW Sec. 27-20-8w
Set 8-in. csg. 2,402 ft.; drlg. 2,460 ft.

Gypsy Oil Co.'s No. 1 Koesling, NW NW SW Sec. 10-20-9w.
Drlg. 2,880 ft.

Langston et al's No. 1 Markle, NE NE SW Sec. 1-20-9w.
H.F.W. 3,014-17 ft.; T.D. 3,082 ft.; U.R. 6-in. csg.

Marathon Oil Co.'s No. 1 Grove, SE NE NW Sec. 29-19-9w.
Location.

Vickers Pet. Co. et al's No. 1 Gouldner, SE NE NW Sec. 16-18-9w.
Rigged up.

ROOKS COUNTY

Carman & Hershey's No. 1 Nelson, NW NW NE Sec. 27-10-16w.
Rig.

Carman & Hershey's No. 1 Nelson, NW NW NE Sec. 27-10-16w.
Rig.

Stearns & Streeter's No. 1 Hoskins, SE SW SE Sec. 34-9-16w.
1,400 ft. oil in hole; T.D. 3,106 ft.; old T.D. 3,199 ft.

Trees Oil Co. and Findeiss' No. 1 Johnson, SW SW SE Sec. 26-10-19w.
Moving in material.

RUSH COUNTY

Lario O. & G. Co. and Phillips Pet. Co.'s No. 1 Benbow, NW NE NE Sec. 13-17-19w.
Drlg. by tools 3,192 ft.

Morgan & Flynn's No. 1 Schlegel, SE SE NW Sec. 26-17-16w.
Moving in material.

RUSSELL COUNTY

J. Brouk and R. D. Bailey's No. 1 Kluesner, NW SE Sec. 34-15-12w.
Rigged up.

Eldorado Ref. Co.'s No. 1 Walz, SE NE NW Sec. 29-13-11w.
T.D. 3,160 ft.; S.D.

Hartman & Blair's No. 1 Furthemyer, NE cor. Sec. 1-14-14w.
S.D. 2,405 ft.

Hartman & Blair's No. 1 Garrett, SW SW NW Sec. 24-13-13w.
Moving in material.

Hartman & Blair's No. 1 Krause, NE NW NW Sec. 5-15-15w.
Drlg. 2,675 ft.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW SW Sec. 11-16-14w.
Location.

Lario O. & G. Co. et al's No. 1 Moore, 760 ft. S and 660 ft. E, NW cor. Sec. 34-13-12w.
Siliceous lime 3,422-25 ft.; H.F.W.; abd.

Murphin et al's No. 1 Funk, SW cor. Sec. 19-12-13w.
Spudded and S.D.

Wolf Creek Oil Co.'s No. 1 Kraft, SW cor. Sec. 26-16-11w.
Rigged up.

Wolf Creek Oil Co. et al's No. 1 Penn Mutual, SW cor. Sec. 22-15-15w.
Cellar (correction).

SALINE COUNTY

Dieter et al's No. 1 Herrington, NE NW SE Sec. 3-13-1w.
Drlg. 2,630 ft.

SCOTT COUNTY

Atlantic Oil Prod. Co.'s No. 1 Vanimen, C SE NE Sec. 15-20-33w.
6-in. liner 4,680 ft.; pay 4,670-86 ft.; acidized and pump 572 bbls. in 24 hrs.; T.D. 4,701 ft.; no increase; running tubing.

SEDGWICK COUNTY

Aladdin Pet. Co. et al's No. 1 D. Lauck, SE NE NW Sec. 21-28-2.
Drlg. 3,340 ft.

Allison & Fitzwilliams et al's No. 1 Struthers, NE SW Sec. 34-28-2w.
H.F.W. 3,176-87 ft.; T.D. 3,295 ft.; fishing.

Cameron, Derby Oil Co. and Trees' No. 1 Brainard, SW SE NW Sec. 19-24-2.
Spudded and S.D.

Magnolia Pet. Co.'s No. 1 Bartholomew, SE SE SW Sec. 30-27-4w.
Chat 3,682 ft.; 9-in. 3,692 ft.; standardising.

Syndicate O. & G. Co. et al's No. 1 Ratzlaff, NE NW NW Sec. 30-26-2.
8-in. 3,912 ft.; C.O. at 3,980 ft.

SHAWNEE COUNTY

Jim Edwards' No. 1 Detrick, C NW NE Sec. 21-14-15.
Top sand 590 ft., T.D.

STAFFORD COUNTY

Atlantic Oil Prod. Co.'s No. 1 Hohner, NW SE SE NE Sec. 31-23-14w.
Siliceous lime 4,075-85 ft.; 1,500 ft. of wtr. in hole.

Atlantic Oil Prod. Co. and Phillips Pet. Co.'s No. 1 Guthrie, C NW NW Sec. 16-25-11w.
8-in. 3,073 ft.; drlg. 3,165 ft.

Lario O. & G. Co.'s No. 1 Tudormorgan, SE SE NW Sec. 23-24-13w.
Rig.

SUMNER COUNTY

T. Palmer's No. 1 Wentworth, NW NW NE Sec. 9-35-2.
Drlg. 3,050 ft.

Shell Pet. Corp.'s No. 1 Green, SE SW NW Sec. 3-33-2.
Rigged up.

Wakefield Pet. Co. et al's No. 1 Newton, SE Sec. 21-30-2.
Rig.

D. J. Wilson et al's No. 1 Clark, 1,320 ft. from W and 25 ft. from S line of NW Sec. 15-35-1w.
Moving in material.

TREGO COUNTY

Central Commercial's No. 1 Wagg, NW NW SE Sec. 17-13-21w.
T.D. 1,600 ft.; fishing.

Jenmar Oil Co.'s No. 1 Jones, SE cor. Sec. 20-12-23w.
Drlg. 700 ft.

Gulf Coast Wildcats

(Continued from Page 64)

DICKINSON—GALVESTON COUNTY

Humble O. & R. Co.'s No. 2-A Maco Stewart, 3,324 ft. S along E line of S bank of Bayou and 566 ft. W of E line at R/A, John Sellers Sur.
Rig up.

Humble O. & R. Co.'s No. 1 Schaper, C S½ of Blk. 15, or on line between Lots 3 and 4 and center N and S. W. K. Wilson Sur.
Coring shale 8,136 ft.

Humble O. & R. Co.'s No. 1 H. O. and W. G. Jones, 750 ft. N of N bank of Bayou and center T and W, J. O. Sherman Sur.
Drlg. shale 7,855 ft.

Humble O. & R. Co.'s No. 1 A. F. Danielson, C of 20-ac. tract, Lots 5 and 6, C. A. Anderson Subd. of Lot 15, of the Righter Subd., John Sellers Sur.
Coring hard sand 8,136 ft.

BATSON—HARDIN COUNTY

John Deering's No. 1 Cruse.
7-in. csg. 5,520 ft.; T.D. 5,567 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 11-N Jordit, 200 ft. due W of No. 11-R Jordit.
Clearing location.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Harkan and Langham.
Dig pits.

Alpha Pet. Co.'s No. 2-A Wm. Weiss, 100 ft. W of No. 2.
T.D. 6,808 ft.; set 5 9/16-in. drill pipe at 6,760 ft.; waiting on perforator.

Sun Oil Co.'s No. 2 Bernard Corp., 150 ft. from N and W lines of Lot 11, H.T.&B. Sur., Sec. 69.
Fishing 7,914 ft.

Texas Co.'s No. 317 fee, 165 ft. S of No. 262, 320 ft. E of No. 274.
T.D. 1,800 ft.; P.B. to 1,463 ft.; 7-in. csg. 1,414 ft.; pumping 120 bbls. per day.

GOOSE CREEK—HARRIS COUNTY

Humble O. & R. Co.'s No. 80 Simms-Smith Scott Lower League, 1,000 ft. E of the most westerly W line, and 300 ft. N of the most northerly S line.
T.D. 6,254 ft.; P.B. to 6,222 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 38 Taylor.
Drlg. gumbo 1,144 ft.

Rio Bravo Oil Co.'s No. 27-A Settegast, 377 ft. S, 553 ft. W of NE cor. of Settegast "A" tract, James Hamilton Sur.
Standing 5,526 ft.

Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur.
T.D. 5,411 ft.; standing.

MYKAWA—HARRIS COUNTY

J. W. Falvey's No. 2 Minnetex, 150 ft. from S line and 87.5 ft. from E line of Blk. 192, Wm. Lovett Sur.
12¼-in. csg. 1,194 ft.; T.D. 1,194 ft.

West Prod. Co.'s No. 1 Cora Holmes, C of 10ac. tract, A. J. Rothas Sur., Blk. 11.
Rig up.

TOMBALL—HARRIS COUNTY

Amerada-Stanolind O. & G. Co.'s No. 2 Bode, 500 ft. from N line and 500 ft. from W line of 40-ac. lease, J. M. Hooper Sur.
Rigging up.

Humble O. & R. Co.'s No. 1 Faris, 466 ft. from W line, 550 ft. from S line of 155-ac. tract, W. Usner Sur.
10¾-in. csg. 924 ft.

Humble O. & R. Co.'s No. 4-A Quilter, 1,250 ft. from S line, 466 ft. from E line of 300-ac. tract, A. Senchel Sur.
Drlg. 948 ft.

Humble O. & R. Co.'s No. 2 Theis, 2,718 ft. from N line, 584 ft. from E line of tract, C. N. Pillott Sur.
10¾-in. csg. 968 ft.; drlg. shale 971 ft.

Humble O. & R. Co. et al's No. 3 Rudel, 1,750 ft. N of S line, 185 ft. E of W line of 90-ac. tract, J. House Sur.
Location.

Humble O. & R. Co.'s No. 1 Ford, 466 ft. from NE line, 363 ft. from SE line, E. Smith Sur.
7-in. csg. 5,542 ft.; T.D. 5,561 ft.; I.P. 22 bbls. per hr. through ¼-in. choke; tubing pressure 775 lbs.

Humble O. & R. Co.'s No. 3 Treischel, 466 ft. from W line, 500 ft. from N line of 112-ac.
Top oil sand 5,543 ft.; 7-in. csg. 5,536 ft.

Humble O. & R. Co.'s No. 2-A Weindorf, 700 ft. from N line, 317 ft. from W line, C. Goodrich Sur.
T.D. 5,575 ft.; 7-in. csg. 5,568 ft.; coring shale 5,593 ft.

Humble O. & R. Co.'s No. 3 Martens, 1,908 ft. from S line, 1,268 ft. from E line of survey, Wm. Heard Sur.
10¾-in. csg. 957 ft.

Humble O. & R. Co.'s No. 7-B Quilter.
7-in. csg. 5,548 ft.; T.D. 5,553 ft.; I.P. 24 bbls. per hr. through ¼-in. choke; tubing pressure 800 lbs.; csg. pressure 800 lbs.

Texas Co.'s No. 3 R. W. Hirsch, 510 ft. W of E line and 466 ft. N of S line of lease.
T.D. 5,386 ft.; 7-in. csg. 5,579 ft.; I.P. 123 bbls. in 8 hrs. through various chokes; shut in; csg. pressure 1,075 lbs.; tubing pressure 1,210 lbs.

KITTRELL—HOUSTON AND WALKER COUNTIES

Humble O. & R. Co.'s No. 6 E. T. Shaw, 330 ft. from NW line, 990 ft. from SW line of lease, Charles McEllis Sur.
Location.

Humble O. & R. Co.'s No. 7 Shaw, 660 ft. NW of No. 5 and 330 ft. from SW line of lease, Charles McEllis Sur.
T.D. 2,031 ft.; top oil sand 1,970 ft.; I.P. 28 bbls. per hr. on ½-in. choke; csg. pressure 180 lbs.; tubing pressure 580 lbs.

Sun Oil Co.'s No. 2 Huffman, 660 ft. NW of No. 1, Charles McEllis Sur.
Rig up.

VANDERBILT—JACKSON COUNTY

Imperator Oil Co.'s No. 1 Dutton, S C of Lot No. 11, Blk. 25, 450 ft. S of R.R. and 1,350 ft. W line of townsite, Ray Musquis Sur.
Rigged up and S.D.

Turman Oil Co.'s No. 1 T. H. Miller, 150 ft. each way out of E 50 ac. of Miller 100-ac. tract in Ray Musquis Sur.
Rigging up.

BIG HILL—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 1-A Pipkin, 2,640 ft. S and 2,050 ft. W of NE cor. of survey.
T.D. 6,319 ft.; milling on csg. 6,151 ft.

FANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 16 Thomas, 650 ft. N of S line, 165 ft. W of E line of W. H. Smith League.
Drlg. sand rock 3,956 ft.

CLEVELAND—LIBERTY COUNTY

Black Gold Pet. Oil Corp.'s No. 2 R. D. McDonald, 466 ft. W of most westerly E line and 466 ft. N of most northerly S line of survey, 933 ft. W of Gulf Prod. Co.'s No. 7-C Kirby Lbr. Co., T. Devers Sur.
Derrick.

William J. Colegrove et al's No. 1 State School Land & Dev. Co., 446 ft. from W line and 170 ft. from S line of survey.
Clayton Harper Sur.
Location.

Gulf Prod. Co.'s No. 8-C Kirby, 933 ft. due E of No. 1 Kirby.
T.D. 5,920 ft.; P.B. to 5,723 ft.; 7-in. csg. 5,723 ft.; flowing est. 3,000,000 ft. of gas per day through ¼-in. choke; tubing pressure 1,825 lbs.; csg. pressure 2,325 lbs.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 21 Esperson.
Drlg. sand 930 ft.

General Crude Oil Co.'s No. 1 W. D. Kay Malcolm Duncan Sur., 1,537 ft. along N
Drlg. shale 6,560 ft.

General Crude Oil Co.'s No. 10 Davis, 2,000 ft. from E line, 660 ft. from S line of D. Kokernut Sur.
Drlg. plugs 1,817 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 5 B. Gehr, 340 ft. from S line of lease, 640 ft. E of Naylor Oil Co.'s No. 7 Gehr, S. Kennedy Sur.
Location.

Gulf Prod. Co.'s No. 1 Myers, 2,777 ft. W and 340 ft. N from SE cor. of 202-ac. tract, H. Christman Sur.
Location.

Gulf Prod. Co.'s No. 4 Crow & Jacobs, 150 ft. E, 420 ft. N of SW corner of lease. Section 21, H & T C Survey.
Cmtd. 7⅝-in. csg.; T.D. 4,293 ft.; made 50 bbls. per hr. then sanded up.

Gulf Prod. Co.'s No. 1 Hankomer, 150 ft. W, 420 ft. N of SE corner of George Stingler Survey.
Location.

HULL—LIBERTY COUNTY

G. R. Brown and S. F. Bashara's No. 1 David Hannah, Jesse Devore league, 200 ft. S line, 150 ft. E line, 42-ac. Gulf tract.
Derrick.

Republic Prod. Co.'s No. 156 Dolbear, 178 ft. W of No. 68, 130 ft. E of No. 68, J. Devore League Sur.
Location.

Texas Co.'s No. 3 Barrow.
6⅝-in. csg. 3,819 ft.; S.D. 4,355 ft.

BUCKEYE—MATAGORDA COUNTY

United North & South Dev. Co.'s No. 1 Unit 4, Buckeye farm, J. C. Keller league, 214 ft. N line and 202 ft. E line of lease.
Shut down.

CONROE—MONTGOMERY COUNTY

Humble O. & R. Co.'s No. 6 Pfaeffiin, 413 ft. N of No. 1, 633 ft. from W line of lease, Wm. Real Sur.
Rig up.

Humble O. & R. Co.'s No. 73 South Tex. Dev. Co., 6,000 ft. E of most easterly W line, 466 ft. S of N line of Theo Slade Sur.
T.D. 5,130 ft.; P.B. to 4,954 ft.; tested S.W.; small amount of gas at 5,057 ft.

Houston Oil Co.'s No. 12 Cartwright, 933 ft. E of No. 11, 933 ft. N of No. 9.
Drlg. shale 913 ft.

Sun Oil Co.'s No. 23 Foster, 799.5 ft. S of No. 12, 892 ft. W of No. 13, J. Brecker Sur.
Cmtd. csg. 5,140 ft.

SPLENDORA—MONTGOMERY COUNTY

Bryce McCandless et al's No. 1 Texas Long Leaf Lbr. Co., 330 ft. from N and E lines of the W¼ of Blk. No. 8, Walker County School Land Sur.
Derrick.

ORANGE—ORANGE COUNTY

Trio Oil Co.'s No. 1 D. S. Comier, 69 ft. W of E line and 39 ft. S of N line of 6.83-ac. tract in W. M. Dyson Sur.
Drlg. shale 2,410 ft.

TOM O'CONNOR—REFUGIO COUNTY

Quintana Oil Co.'s No. 2-B O'Connor, 500 ft. from W line, 260 ft. from S line of M. L. White Sur.
Coring shale 8,367 ft.

Quintana Oil Co.'s No. 6-A O'Connor, J. M. Swisher Sur., Blk. 4.
Prepare to spud.

PORT NECHES—ORANGE COUNTY

Port Neches Pet. Corp. et al's No. 1 W. B. Organ, 450 ft. from NE line and 150 ft. from NW line of A. Schramm Sur., S of Port Neches Field.
Drlg. wtr. sand 7,120 ft.

Texas Co.'s No. 3-B Polk, 200 ft. S, 450 ft. W of SE cor. of Mary E. Hall Sur. No. 3
T.D. 5,933 ft.; cutting and pulling csg.; P.B. to 4,744 ft.

Texas Co.'s No. 3 Orange National Bank, 750 ft. S of N line and 295 ft. E of W line of lease, Jacob Beaumont Sur.
20-in. csg. 131 ft.

Texas Co.'s No. 4-B Polk, 750 ft. S and 1,450 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.

Texas Co.'s No. 5-B Polk, 750 ft. S and 850 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.

Texas Co.'s No. 6-B Polk, 750 ft. S and 250 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.

LIVINGSTON—POLK COUNTY

Gem Oil Co.'s No. 6 Davis & Holmes, 653 ft. from W and 662 ft. from N line of survey, A. Viesca Sur.
Rig up.

J. Z. Werby and Shell Pet. Corp.'s No. 4 Dick & Faling, 660 ft. NW of No. 3, 660 ft. from W line, A. Viesca Sur.
Rig up.

GRETA—REFUGIO COUNTY

Atlantic and Stanolind's No. 3-F O'Brien.
T.D. 6,336 ft.; P.B. and set csg. 2,329 ft.

Hewitt & Daugherty's No. 12 Lambert.
Rig up.

Humble O. & R. Co.'s No. 1-C O'Connor, 310 ft. from N line, 310 ft. from S line of N. S. Crunk and M. J. Ximines Sur.
Top sand 4,356 ft.; 7-in. csg. 4,355 ft.; T.D. 4,372 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 18 F. B. Rooke, 330 ft. E of W line, 330 ft. S from N line in 200-ac. lease.
Set screen and liner 4,925 ft.

Houston Oil Co.'s No. 19 P. H. Rooke, 660 ft. N of No. 18 P. H. Rooke.
Drlg. hard sand and sticky shale 4,882 ft.

Houston Oil Co.'s No. 20 P. H. Rooke, 265 ft. NE of SW line, 127 ft. E of No. 15.
Derrick.

Houston Oil Co.'s No. 21 P. H. Rooke, Thomas Mullen grant, 990 ft. from E line, 697 ft. SW from No. 18.
Digging pits.

United Gas Co.'s No. 4 Fannie Heard old well.
T.D. 3,520 ft.; comp.; no gauge; 1,340 lbs. csg. pressure; 1,300 lbs. tubing pressure; ¼-in. choke.

United Gas Co.'s No. 10 Wilson Heard, runs 2,062 ft. along NE line Wilson Heard lease from S cor. of Houston Oil Co.'s F. V. W. Heard lease, 4,579 ft. to a point, thence at R/A to line 330 ft. to point of location.
Derrick.

United Gas Co.'s No. 4 Mitchell, 150 ft. from NE cor. of 150-ac. lease.
R.U. to W.O.

COLLETTO CREEK—VICTORIA COUNTY

Albert Plummer's No. 4 Terrell.
Drlg. plug; in sand 2,804 ft.

Nutex Oil Co.'s No. 4 Zimmer, 330 ft. from NW line, 922 ft. from SW line of Manchola Sur.
Testing 2,820 ft.

McFADDIN-O'CONNOR DISTRICTS—VICTORIA AND REFUGIO COUNTIES

Sun Oil Co.'s No. 12 Janner.
Coring 1,077 ft.

Texas Co.'s No. 9 McFaddin.
Location.

LOUISE—WHARTON COUNTY

Pure Oil Co.'s No. 1 John Macha, 318 ft.

from NW line and from SE line of F. Walnut Sur., and 467 ft. from NE line of 101.53-ac. lease, M.&C. Sur. No. 25. Location.
Pure Oil Co.'s No. 1 G. Wharton Est., 1,497 ft. from SW line and 318 ft. from SE line of F. Walnut Sur., Abst. A-35. Prepare to sidetrack.
Pure Oil Co.'s No. 3 Stewart, Morris & Cummings Sur., Sec. 25, 990 ft. out of SW cor. of 160 acres. Coring 5,050 ft.
Pure Oil Co.'s No. 3 Stewart, 1,000 ft. SW and 318.25 ft. SE from N cor. of W. L. Stewart's 160-ac. tract, Morris and Cummings Sur. No. 25. Location.
Pure Oil Co.'s No. 4 Stewart, 485 ft. SW, 320 ft. NW of E cor. of W. L. Stewart's 160-ac. tract, Morris and Cummings Sur. No. 25. Location.

BAY ST. ELANE—TERREBONNE PARISH

Texas Co.'s No. 9 Bay St. Elane. T.D. 7,123 ft.; cmtd. back to 6,328 ft.

CALLIOU ISLAND—TERREBONNE PARISH

Texas Co.'s No. 17 Calliou Island, Sec. 20-23-23. Rig up.
Texas Co.'s No. 18 Calliou Island T.D. 3,977 ft.; P.B. to 3,183 ft.; to set whipstock.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 3 State. Prepare to swab; T.D. 6,499 ft.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Standard Oil Co. of Kansas' No. 1 Mouton, 1,480 ft. E, 250 ft. S of NW cor. of SW¼ Sec. 34-8s-3e. 7-in. csg. 8,507 ft.; T.D. 8,607 ft.
Superior Oil Prod. Co.'s No. 5 Comeaux, 2,-878 ft. S, 1,062 ft. W of NE cor. Sec. 34-8s-3e. Drlg. sand and shale 4,956 ft.
Superior Oil Prod. Co.'s No. 3 Arceneaux, 1,271 ft. S, 1,580 ft. W of NE cor. Sec. 33-8s-3e. Drlg. shale 820 ft.
Superior Oil Prod. Co.'s No. 4 Comeaux, 1,-430 ft. S. 3 deg. W. 350 ft. S. 89 deg. E out of NW cor., NE¼ Sec. 34. Coring sand and shale 7,820 ft.
Superior Oil Prod. Co.'s No. 2 Johnson, 1,-128 ft. N, 673 ft. E from SW cor. of NE¼ Sec. 34. Drlg. sand and shale 5,645 ft.
Superior Oil Prod. Co.'s No. 1 Coralie Domingus, 3,998 ft. S, 767 ft. W of NE cor. Sec. 34-8s-3e. Coring shale and sand 8,530 ft.
Superior Oil Prod. Co.'s No. 4 Hermandez, 450 ft. E and 330 ft. S of NW cor. of lease, Sec. 34-8s-3e. 7-in. csg. 8,663 ft.; T.D. 8,683 ft.; I.P. 180 bbls. in 7½ hrs.; 10/64-in. choke; tubing pressure 1,000 lbs.; csg. pressure 1,300 lbs.
Superior Oil Prod. Co.'s No. 7 Larcade, 2,-467 ft. E, 190 ft. N of SW cor. N½ NW Sec. 35-8s-3e. Drlg. shale 8,645 ft.
Superior Oil Prod. Co.'s No. 1 Moise LaVergne, 269.7 ft. W and 98 ft. N of SE cor. of Sec. 28-8s-3e. Drlg. shale 6,748 ft.
Superior Oil Prod. Co.'s No. 1 C. B. Hermandez, 2,791.6 ft. S, 330 ft. W of NE cor. of NW¼ Sec. 34-8s-3e. 7-in. csg. 8,639 ft.; T.D. 8,659 ft.

DARROW—ASCENSION PARISH

Humble O. & R. Co.'s No. 4 Community, 4,825 ft. from NE cor. and 288 ft. S of N line at R/A, Sec. 33-10s-2w. Digging cellar.

EDGERLY—CALCASIEU PARISH

Emerson Oil Co.'s No. 1 Bright-Penn. T.D. 3,727 ft.; prepare to pump.

CAMERON MEADOWS—CAMERON PAR.

Burton-Sutton's No. 1 School Land. Cmtd. csg.; T.D. 4,969 ft.
Burton-Sutton Oil Co.'s No. 4 School Land, 2,891 ft. W and 150 ft. N of SE cor. of Sec. 16-4s13w. Derrick.
Magnolia Pet. Co.'s No. 10 Cameron Meadows, 500 ft. S of No. 9. Drlg. shale 750 ft.
Texas Co.'s No. 1 Miami Corp. Drlg. shale 8,827 ft.

CHOCTAW DOME—IBERVILLE PARISH

Standard Oil Co.'s No. 5 Gay, 2,450 ft. S and 425 ft. E of NW cor. of NE Sec. 32-9s-11e. Drlg. shale 2,169 ft.

DOG LAKE—TERREBONNE PARISH

Texas Co.'s No. 11 State, 150 ft. N and 2,474 ft. W, SE cor. Sec. 31-21s-16e. Derrick.

GARDEN ISLAND BAY—TERREBONNE PARISH

Texas Co.'s No. 13 State, 3,391 ft. S and 1,-504 ft. W of NE cor. Sec. 107-23-32. Rig up.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6, Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w. Drlg. sandy shale 7,463 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 4 Hanzen, 1,680 ft. W and 730 ft. N of SE cor. Sec. 11-12s-10w. Drlg. sand 6,509 ft.
Calcasieu Oil Co.'s No. 3 H. C. Hansen, 150 ft. S and 150 ft. E of NW cor. of lease. Sec. 13-12s-10w. Drlg. rock 5,763 ft.
Gulf Prod. Co.'s No. 17 Erwin. Drlg. sand and shale 3,972 ft.
Gulf Prod. Co.'s No. 14-B State, 610 ft. S, 1,866 ft. E of NE cor. Sec. 13-12s-10w. Derrick.
Sutton Oil Co.'s No. 1 Ellender, 616 ft. S and 50 ft. E of NW cor. SW¼ SE¼ Sec. 23-12s-10w. Rig up.
Sutton Oil Co.'s No. 2 Portier, 717 ft. S and 50 ft. W of NW cor. SW¼ SE¼ Sec. 23-12s-10w. Location.
Texas Co.'s No. 14 State, 500 ft. SE of No. 13, Sec. 13-12s-10w. Derrick.
Yount Lee Oil Co.'s No. 1-A Gulf Land, 2,000 ft. S and 50 ft. E of the NW cor of Sec. 22-12-10. Rig up.
Yount Lee Oil Co.'s No. 12 Gulf Land, 1,625 ft. S and 350 ft. W of NE cor. of NW of Sec. 14-12s-10w. Drlg. sand 5,748 ft.
Yount Lee Oil Co.'s No. 15 School land, 1,-160 ft. S, 715 ft. W of NE¼ of SW cor. Sec. 16-12s-10w. T.D. 4,539 ft.; I.P. 10 bbls. per day; 5/16-in. choke.

NEW IBERIA—IBERIA PARISH

Harrison & Abercrombie's No. 3 Schwing, 500 ft. N and 50 ft. E of No. 2, Sec. 24-12s-5w. Drlg. shale 6,025 ft.
Iberia Oil Corp. and Y. D. Spell's No. 2 Bernard, 150 ft. E of No. 1, Sec. 54-12s-7e. Drlg. lime rock 3,602 ft.
Iberia Oil Co. and Y. D. Spell's No. 3 Bernard, 300 ft. N of No. 2, Sec. 54-12s-7e. Rig up.
Texas Co.'s No. 1 Hanzen, NE along NW line of lease 508 ft., thence 150 ft. E at R/A, Sec. 54-12s-7e. Drlg. shale 7,422 ft.

IOWA—CALCASIEU AND JEFF DAVIS

Shell Pet. Corp.'s No. 2 Ardoin. Building derrick.
Shell Pet. Corp.'s No. 1 Johnston. T.D. 4,441 ft.; I.P. 742 bbls. per day; tubing pressure 225 lbs.; csg. pressure 250 lbs.
Shell Pet. Corp.'s No. 13 Hyde, 990 ft. S. 330 ft. E of NW cor. NE Sec. 13-9s-7w. Coring sandy shale 6,909 ft.
Shell Pet. Corp.'s No. 5 Stafford, 1,650 ft. from S line, 330 ft. W of NE cor. of lease, Sec. 18-9s-6w. Made D.S. test from 6,586-6,617 ft.; no recovery.
Shell Pet. Corp.'s No. 14 Heyd, 330 ft. N, 1,319 ft. W of SE cor. of NE¼ Sec. 13. Coring sand 6,022 ft.

JENNINGS—ACADIA PARISH

Simon-Tolson and Gardner's No. 1, 1,020 ft. due E and 250 ft. due W of SE cor. Sec. 46-9s-2w. S.D. 1,870 ft.
Yount Lee Oil Co.'s No. 14 Housierre-Latrielle, 260 ft. N of No. 13, Sec. 47-9s-2w. D.S. stuck 7,813 ft.
Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. due E, 1,070 ft. due N of SW cor. of section. Drlg. shale 7,770 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 31 Lake Barre. Drlg. anhydrite 3,018 ft.
Texas Co.'s No. 14 Lake Barre. D.S. stuck 2,999 ft.
Texas Co.'s No. 15 Lake Barre. Drlg. anhydrite 2,067 ft.

LAKE PELTO—TERREBONNE PARISH

Texas Co.'s No. 12 Lake Pelto. Drlg. sand 6,458 ft.
Whitstone O. & G. Co.'s No. 1 Buckley, 300 ft. S and E of NW cor. SW SW Sec. 35-19s-16e. S.D. 3,063 ft.

LAKE WASHINGTON—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 23 Cockrell-Moran, 650 ft. N and 21 deg. 30 min. E of No. 3 in Twp. 20s-26e. T.D. 5,301 ft.; P.B. to 4,072 ft.; cutting 9⅝-in. csg.

LEESVILLE—LAFOURCHE PARISH

Gulf Prod. Co.'s No. 5 Bernard. T.D. 3,59 7ft.; set whipstock 3,569 ft.
Gulf Prod. Co.'s No. 10 Bernard, 1,833 ft. E, 958 ft. S of NW cor. Sec. 26-21s-22e. Derrick.
Emerald Pet. Co.'s No. 10 State, west bank, 300 ft. S of well No. 1. Location.
Emerald Pet. Co.'s No. 11 State, east bank, 227 ft. N of well No. 1. Location.
Emerald Pet. Co.'s No. 12 State, east bank, 250 ft. S of well No. 1. Location.
Lincoln Oil Co.'s No. 5 State. Location.
Texas Co.'s No. 31 Leesville. Drlg. shale 3,671 ft.
Texas Co.'s No. 23 Leesville. Rig up.
Texas Co.'s No. 27 Leesville. Bldg. derrick.
Texas Co.'s No. 30 Leesville, 1,075 ft. S, 310 ft. E, NW cor. Lot 6, Sec. 26-21s-22w. Drlg. wtr. sand 3,993 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 5-A Farquar (W.O.). Drlg. sand 6,478 ft.
Magnolia Pet. Co.'s No. 8 Farquar (W.O.). Cutting and pulling liner 6,716 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Prod. Co.'s No. 11 Wilson Cochran, 1,-500 ft. S, 9 deg., 6 min. W from most southerly NE cor. of Texas Co.'s Botnay Bay lease, Sec. 4-6s-5e. Drlg. gumbo 1,355 ft.

ROANOKE—JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Kratzer, 440 ft. from W line, 440 ft. from S line of 120-ac. tract, Sec. 11-4w-9s. T.D. 8,671 ft.; cored sand and shale showing oil from 8,650-67 ft.; 7-in. csg. 8,643 ft.
Humble O. & R. Co.'s No. 1 Clayton, 2,080 ft. S and 440 ft. W, NE cor. Sec. 10-9s-4w. Rig up.
Humble O. & R. Co.'s No. 3 Devilbiss, 1,399 ft. W, 466 ft. S of NE cor. Sec. 14-9s-4w Perforated csg. 9,205-10 ft.; T.D. 9,216 ft.
Shell Pet. Corp.'s No. 1 Jarnigan, 330 ft E. 660 ft. S. NW cor. Sec. 12-9s-4w. D.S. stuck; T.D. 10,001 ft.
Shell Pet. Corp.'s No. 1 Carter, 660 ft. N and 330 ft. W of SE cor. NW Sec. 1-9s-4w. Coring sand 8,455 ft.
Shell Pet. Corp.'s No. 3 Kratzer, 1,320 ft. E and 440 ft. N of SW cor. of lease. Location.

STARKS—CALCASIEU PARISH

Gulf Prod. Co.'s No. 33 Lutcher Moore, Sec. 19-9s-8w. T.D. 3,335 ft.; P.B. to 3,110 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee Oil Co., 800 ft. S of No. 11, in line with Nos. 9 and 11, Sec. 12-13s-3w. S.D. 2,196 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 724 fee. Drlg. sticky shale 3,591 ft.
Union Sulphur Co.'s No. 807 fee. Drlg. rock 1,974 ft.
Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of C Sec. 29-9s-10w. Swbd. S.W.; P.B. from 5,391 ft. to 5,-185 ft.; testing.

VINTON—CALCASIEU PARISH

Vinton Pet. Co.'s No. 12 Gray, 605 ft. N and 374 ft. W of SE cor. Sec. 33-10s-12w. Abd. 1,991 ft.
Wilson Broach's No. 9 Wilson T.D. 3,596 ft.; pumping 30 bbls. per day.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 1 White Castle Shingle Co., 1,830 ft. W, 100 ft. S from NE cor of lease. Drlg. salt 5,024 ft.
Shell Pet. Corp.'s No. 1 Adams, 2,340 ft. N, 100 ft. E of SW cor. of lease. Drlg. sand and gravel 889 ft.

MISCELLANEOUS WILDCATS

TEXAS

BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Houston Farm Dev. Co., 1,414 ft. N, 316 ft. W of SE cor. of L. Bachelder Sur. Ran 302 ft. of 7-in. liner; D.S. stuck; prepare to wash over fish; T.D. 6,992 ft.; sand.
George Strake's No. 2 Truska, 991 ft. W of No. 1, H.T.&B. Sur., Sec. 7. Drlg. shale 5,720 ft.
Holt et al's No. 1 Griffith, J. B. Bailey Sur. T.D. 4,200 ft.; waiting orders.
Luling O. & G. Co.'s No. 1 Jameson, 600 ft W of E line, 750 ft. S of N line of N E. Roberts Sur. Abd. 4,535 ft.
Showers & Moncrief's No. 1 Hughey, 5,500 ft. NW of discovery well, in center of Lot 18, H.T.&B. Sur., Sec. 29, Abst. 293. Location.

CALHOUN COUNTY

Steinberger Pet. Co.'s No. 1 W. A. Shofner, 330 ft. from S and E lines of 100-ac. tract in M. Sanches Sur. Drlg. shale 2,710 ft.

CHAMBERS COUNTY

Humble O. & R. Co.'s No. 1 Middleton, 466 ft. each way out of the SW cor. of survey. Tested 6,900 ft. of oil on D.S. test from 7,024-50 ft.; 7-in. csg. at 7,026 ft.; prepare to test.
South Gulf Oil Co.'s No. 1 J. T. White, Luke Brian Sur., 460 ft. from N line, 460 ft. from W line of 47.9-ac. tract. Derrick.
Sun Oil Co.'s No. 1 Hamilton, 1,400 ft. from N line, 1,400 ft. from W line of survey. T.&N.O. Sur., Sec. 128. Coring shale 8,830 ft.

FORT BEND COUNTY

W. A. Shafer et al's No. 1 V. B. Bertash, 693 ft. SW of NE line and 1,003 ft. NW of SE line of Sec. 52, H.&T.C. Sur. S.D. 2,900 ft.
Turnbull & Irwin's No. 1 Herman Hospital, 100 ft. W of E line, 350 ft. N of SL of 446-ac. tract, J. H. Cartwright Sur. 10¾-in. csg. 882 ft.
George White et al's No. 1 M. M. Cravina, 1,000 ft. from N, 300 ft. W of SW cor. of survey, B.B.B.&C. Sur. No. 3. Rig up.

GALVESTON COUNTY

Gillock Pet. Co.'s No. 2 Maco Stewart, 900 ft. N and 150 ft. W of No. 1, Alex Farmer Sur. T.D. 1,500 ft.; waiting on surface pipe; S.D.
Texana Gulf Oil Corp.'s No. 1 Thomas Shaw (200 acres), 150 ft. NW line, 165 ft. NE line, Lot 66, Sec. 7, Hall & Jones, Galveston Island. S.D. 6,512 ft.

GRIMES COUNTY

Hubert Holt et al's No. 1 Simon Fuqua, 1,200 ft. N of S line and 400 ft. W of P line of 177-ac. lease and survey, Moses Evans Sur. S.D. 3,080 ft.
Dr. Marshall et al's No. 1-B Todd, 300 ft from E line and 175 ft. from N line of 150-ac. tract in extreme NW cor. of county (25 ft. N of No. 1). S.D. 2,005 ft.
Roan et al's No. 1 S. W. Sealy, 3,474 ft. N of S line and 850 ft. E of W line of survey, B. F. Smith Sur., 3 miles SW of Kellum Springs. S.D. 2,650 ft.

HARDIN COUNTY

Frazier & Greer's No. 1 Sternberger Lbr. Co., 1,325 ft. S and 400 ft. W of the NE cor. of a 115-ac. tract, J. Pearson Sur. Location.

HARRIS COUNTY

Cockburn Oil Co. and Frazier's No. 1 Herman Hospital, 910 ft. N, 300 ft. W of SE cor. of tract, William Hardin Survey. Cored sand from 5,770-75 ft.; drlg. ahead.
Esco Oil Co.'s No. 1 E. P. Seureau, 3,3.. ft. from W line and 2,215 ft. from S line of 350-ac. tract, W. P. Harris Sur. Abst. A-30. S.D. 6,022 ft.
Eureka Heights' No. 1 Varner, 400 ft. from S line of 107.22-ac. tract and 4,173 ft. from E line of H. Rinerman Sur. Derrick.
T. S. F. Oil Co.'s No. 1 J. B. Hine, Arthur McCormick Sur., Abst. 46. S.D. 3,400 ft.
C. C. Foster et al's No. 1 H. K. Johnson, 2,000 ft. from S line and C of E and W lines of G.C.&S.F. Sur. Drilled 25 ft. and S.D.
Means and McGehee, Inc.'s No. 1 Laura Lackner, 9,857 ft. W and 2,803 ft. N, of H. Rinerman Sur. Abd. 7,852 ft.
Means & McGehee's No. 1 Herbert Neuhaus, 400 ft. from S and E lines of 154.55-ac. tract, Wm. P. Morton Sur. Abd. 7,701 ft.
Hill & Hill's No. 1 Wharton, 466 ft. from NW cor. Sec. 5, W.C.R.R. Sur. Drlg. shale 258 ft.
W. U. Paul's No. 2 House, 100 ft N of No. 1, M. Magruder Sur. Drlg. shale 4,563 ft.

HOUSTON COUNTY

Adams et al's No. 1 Sanders, 330 ft. from S line, 330 ft. from W line of 55-ac. tract of lease, J. Thomas Sur. T.D. 2,850 ft.; to make electrical coring test.
Sterling O. & R. Co.'s No. 1 Bruton, 2,850 ft. from E line and 5,000 ft. from S line of survey, Barton Clark Sur. Derrick.

JACKSON COUNTY

A. M. Harris' No. 1 Whitley, 800 ft. out of SE cor. of F. G. Keller Sur. Location.
Shell Pet. Corp.'s No. 1 W. W. McCrary, 460 ft. out of SE cor. of 50-ac. tract, A. Kountze Sur. Spudded.

JASPER COUNTY

Republic Prod. Co. and Houston Oil Co.'s No. 1 Sabine Tram. Co., 330 ft. out of NW cor. Sec. 71, H.&T.C. Sur. 20-in. csg. 20 ft.; drlg. shale 834 ft.

JEFFERSON COUNTY

Sun Oil Co.'s No. 1 H. Long, 1,500 ft. S line, 990 ft. E line of lease. Sidetracked from 8,647-65 ft.; drlg. cmt.
Sun Oil Co.'s No. 1 Hebert & Braussard, 890 ft. NW along SW line and 660 ft. NE at right angles to SW line, B. Blackmas Sur., Abst. No. 2. Rig up.

LIBERTY COUNTY

R. M. Bruner et al's No. 1 N. Bell, 150 ft. from N line and 150 ft. from W line of Bell's 187-ac. tract, H.&T.B. Sur. No. 4. Rigging up.
Extension Oil Co.'s No. 1 J. A. Lovett, 250 ft. from E and 600 ft. from S line of lease. P. P. Deevers Sur. T.D. 4,048 ft.; to install heavier rig.
J. W. Frazier et al's No. 1 Lynott & Buffum, 466 ft. from N and E lines of 60-ac. tract in extreme SE part of survey, James Robeson Sur. Location.
Liberty-Independent Oil Co.'s No. 1 J. M. Neal, 3,550 varas from E line and 500 varas from N line of Samuel Strong Sur. Drlg. shale 3,775 ft.
A. L. Maxwell's No. 1 M. P. Hinciiff, 200 ft. from E line and 1,000 ft. from the N line of survey, H.&T.C. Sur., Sec. 10s. S.D. 600 ft.
Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur. T.D. 5,047 ft.; 8¾-in. csg. at 5,029 ft.

MADISON COUNTY

Madisonville Pet. Co.'s No. 1 Cannon, 660 ft. N of S line, 440 ft. E of W line of 185-ac. tract, J. V. Phillips Sur. Location.

MATAGORDA COUNTY

Cockburn Oil Co.'s No. 6 Hawkins, 2,600 ft. from NW line, 1,200 ft. from SW line of McCarthy Sur. T.D. 5,803 ft.; cutting and pulling stuck D.S.
Dr. Griffith's No. 1 fee, 3,000 ft. from E line and 3,000 ft. from W line of Wm. H. Bell Sur. Rigging up and S.D.
Horace M. Smith, Inc.'s No. 1 Wadsworth ranch, 150 ft. out of S cor. of Lot No. 8, Blk. S, R. Fisher Sur. Drlg. shale 5,206 ft.

MONTGOMERY COUNTY

Reynolds Drlg. Co. et al's No. 1 Mrs. Clara B. Stewart, 330 ft. S and E of most easterly inner cor. of 595-ac. tract, John Corner Sur. S.D. 5,500 ft.
Trans State Oil Co.'s No. 1 Foster, 700 ft. E of W line, 2,000 ft. N of S line, Lot 27. Cmtd. 10-in. csg. 226 ft.
Woodard-Smith-Cooper's No. 1 J. V. Scott, F. A. B. Wheeler Sur. 7-in. csg. 3,137 ft.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 20-ac. tract T.D. 2,770 ft.
Ellis Oil Co.'s No. 1 G. W. Pell, 100 ft. from N and 300 ft. from W line of Pell tract in the J. M. Henerie Sur. S.D. 1,200 ft.

POLK COUNTY

Howard Dailey et al's No. 1 Z. B. Knox, 1,450 ft. W and 1,920 ft. S of NE cor. of F. Chairs Sur., 16 miles NE of Corrigan. S.D. 60 ft.
J. F. Anderson's No. 1 E. L. Duke (O.W.D. D.), 400 ft. from E and 250 ft. from S of SW cor. of P. Michelick 50-ac. lease, Abst. 59, P. J. Mineral Sur. Waiting on a new mud pump; T.D. 5,304 ft.
J. W. Leggett et al's No. 1 Bergman, C of 294-ac. tract, or 1,100 ft. W of H.E.&W.T. R.R., J. T. Pinkney Sur. Rig up.
Dick Schwab's No. 1 Lynch, 330 ft. out of NW cor. of 200-ac. tract in the George Jameson Sur. Location.
E. A. Thompson's No. 1 Haynes, 990 ft. out of NW cor. of 320-ac. tract and survey, J. Whitmire Sur., E of Leggett. 10¾-in. csg. 280 ft.
West Prod. Co.'s No. 1 W. T. Carter, 330

ft. due E of SE cor. of W. D. Johnson's 53.7-ac. lease, 3½ miles E of Livingston Field, S. C. Hiram Sur., Abst. A-37.
Abd. 5,011 ft.

REFUGIO COUNTY

Cecil Hagen et al's No. 1 Edith Clarkson, 1,736 ft. from N line, 3,320 ft. from E line of J. Coughlin Sur. Location.
Magnolia Pet. Co.'s No. 1 Woods, 330 ft. from S and W lines of S. Turner Sur. Location.

SAN AUGUSTINE COUNTY

Fidelity Exploration Co.'s No. 2 Bryan & Flournoy, 400 ft. from No. 1.
T.D. 1,565 ft.

SAN JACINTO COUNTY

Ralph Sturam et al's No. 1 R. B. Love et al, 475 ft. S of N line and 2,000 ft. W of E line of 177-ac. tract, Drury McGee Sur. Location.

TRINITY COUNTY

Boone Bros.' No. 1-C Texas Long Leaf Lbr. Co., C of 80-ac. tract, Martinez Sur.
Lost hole 1,230 ft.; skidded 14 ft. west; drlg. 710 ft.

WALKER COUNTY

Boone Bros.' No. 1-D Texas Long Leaf Lbr. Co., 330 ft. E and 275 ft. N of SW cor. of 112.6-ac. tract, Mary Millsap Sur. Location.
S. E. Gray's No. 1 Winzell, 1,200 ft. N and 1,000 ft. E of most southerly S line of survey.
Derrick.

WALLER COUNTY

Smith et al's No. 1 J. S. Garrett, 4,840 ft. NW and 325 ft. NE from SE cor. of 9 M. Williams Sur., 3 miles N of San Felipe. Location.
Stanolind O. & G. Co. et al's No. 1 J. W. Tharp, 466 ft. from S and E lines of J. M. Bennett Sur. No. 100.
T.D. 7,647 ft.; P.B. to 7,466 ft.; mudded up and T.A.

WASHINGTON COUNTY

Arkansas Fuel Oil Co.'s No. 1 Witschark, 100 ft. NW of Bruton, 100 ft. S of the center of a 65-ac. tract, J. D. Miller Sur.
Rig up.

WHARTON COUNTY

John Deering's No. 1 C. T. and D. Kountze, 1,320 ft. from N line, 330 ft. from E line of S.A.&M.G. Sur., Sec. 1, Abst. 328.
Cored S.W. sand from 4,757-67 ft.
Texas Co.'s No. 1 Pierce Estate, 4,950 ft. S. 34 deg. E and 4,300 ft. N, 56 deg. E from W cor. of Tract 2, I.&G.N. Sur. No. 3, 13⅜-in. csg. 1,099 ft.; drlg. shale and lime 2,992 ft.

SOUTH LOUISIANA
ACADIA PARISH

Humble O. & R. Co.'s No. 1 American Rice Mills, 660 ft. S and 1,320 ft. W from NE cor. Sec. 27-10s-1e.
Coring sand 8,484 ft.
Superior Oil Co. et al's No. 1 A. S. Newman, 2,000 ft. N and 1,120 ft. E of SW cor. Sec. 24-7s-1w.
T.D. 7,580 ft.; P.B. to 4,920 ft. to set whipstock at 4,930 ft.

AVOYELLES PARISH

Bell Drlg. Co.'s No. 2 Thompson, 450 ft. S. 860 ft. E. NW cor. NE¼ Sec. 11-2n-5e.
Rig up.
Southern State Pet. Co.'s No. 1 Boyette, 330 ft. N and 330 ft. E of SW cor. Sec. 28 3n-5e.
Drlg. shale 3,037 ft.

BEAUREGARD PARISH

Chew & Kirby's No. 1 Long Bell Lbr. Co., 330 ft. S and W of C of NE¼ Sec. 26-2s-8w.
Location.
Richardson & Martin's No. 1 Southwest Lbr. Location.

CALCASIEU PARISH

Fred Oil Co.'s No. 2 Faizst, 262 ft. E and 83 ft. S of NW cor. SE¼ Sec. 26-8s-10w.
Derrick.
Fohs Oil Co.'s No. 1 McIver, 330 ft. S and W of NE cor. Sec. 14-9s-8w.
Location.
Fohs Oil Co.'s No. 3 Castle, located in C of NE¼ of SW¼ Sec. 14-9s-8w.
Rig.
Fohs Oil Co.'s No. 3 Castle, 990 ft. due E of producer in SW¼ Sec. 13-9s-8w.
Drlg. 913 ft.
Fohs Oil Co.'s No. 4 Castle, 330 ft. S and 330 ft. W of C Sec. 13-9s-8w.
Set 10-in. csg. at 1,350 ft.
Gulf Prod. Co.'s No. 1 H. Starks et al, 1,650 ft. W and 1,980 ft. S of NE cor. Sec. 26-11s-12w.
Drlg. sand and shale 7,412 ft.
Nicholas McCaleb's No. 1 Grey, 2,300 ft. S. 1,200 ft. E of NW cor. Sec. 23-8s-13w.
Rig up.
Texas Co.'s No. 1 Nickerson, 2,139 ft. N and 3,238 ft. W of SE cor. Sec. 12-9s-8w.
Drlg. 6,550 ft.
Union Sulphur Co.'s No. 2 State, 748 ft. S and 3 ft. E, NW cor. SW Sec. 13-9s-8w.
6⅝-in. csg. 6,701 ft.; T.D. 6,711 ft. in oil sand; I.P. 500 bbls. per day; ¼-in. choke; tubing pressure 1,040 lbs.
Union Sulphur Co.'s No. 3 State, 2,135 ft. S, 2,340 ft. E of NW cor. Sec. 13-9s-8w.
Location.
Union Sulphur Co.'s No. 1 Castle, 326 ft. N and E of NW Sec. 13-9s-8w.
Drlg. brittle shale 6,769 ft.
Union Sulphur Co.'s No. 1 Buhler, 1,485 ft. N and 435 ft. W of SE cor. Sec. 11-9s-8w.
Coring sandy shale 6,363 ft.
Union Sulphur Co.'s No. 3 Barbe, 396 ft. N and 329 ft. W of SE cor. of NE¼ Sec. 11-9s-8w.
Building derrick.
Union Sulphur Co.'s No. 1 Reeves-Mayo, 660 ft. NE of discovery.
Location.
Union Sulphur Co.'s No. 2 Castle, 660 ft. E of No. 1 Castle.
10-in. csg. at 1,406 ft.
Wheeler Oil Co.'s No. 1 Gabbert, 1,323 ft. E and 548 ft. N of SW cor. of Sec. 29-9s-7w.
Drlg. shale 3,284 ft.

EAST FELICIANA PARISH

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
Washing over stuck D.S.; T.D. 1,490 ft.

CAMERON PARISH

Texas Co.'s No. 1 Jessen, 1,170 ft. E and 550 ft. N of C Sec. 24-14s-10w.
Drlg. shale 3,922 ft.

JEFFERSON DAVIS PARISH

George W. Strake's No. 1 Calcasieu Natl. Bank, 200 ft. S and E of NW cor. SE NE Sec. 12-8s-6w.
T.D. 8,091 ft.; P.B. to 7,550 ft.; drlg. shale 830 ft.

JEFFERSON PARISH

Texas Co.'s No. 1 Bayou St. Dennis, 20,307 ft. S. 4,853 ft. E of NW cor. of Twp., Sec. 19-17s-24e.
Drlg. shale 5,887 ft.

LAFOURCHE PARISH

Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7 thence 250 ft. S of Sec. 26-21s-22e.
Spudded and shut down.

PLAQUEMINES PARISH

Venice Corp.'s No. 1 Burras.
Drlg. shale 1,990 ft.

RAPIDES PARISH

J. B. Evers' No. 1 G. Wettermark, 540 ft. S and 520 ft. E, NW cor. NE SW Sec. 35-6n-3e.
C. D. Loe's No. 1 Barrett, 330 ft. NW of SE line and 880 ft. NE of SW line of Sec 40-5n-1w.
Drlg. sand 2,640 ft.
Williams-Terrell & Day's No. 1 Armstrong & Murphy, 286 ft. N and 300 ft. W of SE cor. Sec. 24-5n-1w.
Moving in rig.

ST. BERNARD PARISH

Danciger's No. 1 Battles, 836 ft. N, 2,198 ft. W of SE cor. Sec. 135-14s-14e.
Cmtd. csg.; moved off rig; T.D. 6,001 ft.

TANGIPOHA PARISH

R. A. Conklin's No. 1 Lake Superior Piling Co. 200 ft. W and N of SE cor. Sec. 19-5s-9e.
S.D. 850 ft.

VERMILLION PARISH

Moore Bros.' No. 1 Brussard, 350 ft. S of N line, 250 ft. E of W line, NE cor. Sec. 32-11s-3e.
S.D. 4,056 ft.

La.-Ark. Wildcats

(Continued from Page 68)

Ben F. Smith's No. 1 Bonds, 200 ft. E. 500 ft. N, SW cor. Sec. 23-12-11.
S.D. 2,749 ft.
National Oils, Inc.'s No. 1 B. Y. Wemple, NW SW Sec. 14-12-11.
S.D. 120 ft.

EAST CARROLL PARISH

Century Oil & Drlg. Co.'s No. 1 Olive Dell, 660 ft. S, 300 ft. W, NE cor. Sec. 56-21-21e.
S.D. 150 ft.

GRANT PARISH

C. & S. Oil Corp.'s No. 1 Swope, Sec. 17-19-1e.
Rigging up

LA SALLE PARISH

F. A. Trichello's No. 1 Urania, Sec. 3-9-1e.
S.D.; junked hole 1,491 feet.

NATCHITOCHES PARISH

Clyde Crichton's No. 1 Friedman Est., 406 ft. N, 428 ft. E, SW cor. Sec. 52-7-6.
Drlg. 2,780 ft.
Missouri Drlg. Co.'s No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10.
S.D. 1,033 ft.
Roy A. Raines et al's No. 1 Raines est., 330 ft. N and E, SW cor. Sec. 8-9-10.
Fishing for D.S. 3,540 ft.; (corrected).

RAPIDES PARISH

C. D. Loe, trustee's No. 1 Baird Est., SE cor. Sec. 40-5n-1w.
S.D.; repair derrick 3,514 ft.

RED RIVER PARISH

J. S. Tuffree's No. 1 Wilkinson, 1,320 ft. S and W, NE cor. Sec. 11-12-11.
S.D. for fuel 1,180 ft.

SABINE PARISH

H. J. Brothers et al's No. 1 Edwards, 300 ft. S and W, NE cor. SW NW Sec. 29-9-13.
Pumped off; S.D.; W.O. 1,887 ft.
Crescent Drlg. Co.'s No. 3 Garner, Sec. 3-7-11.
Rigging up.
Frank R. Foster, Inc.'s No. 1 Phillipe, 250 ft. N, 288 ft. E, SW cor. SW NW Sec. 16-9-11.
Dry and abd. 3,540 ft.
M. T. Hines' No. 1 J. B. Hill, SW NE Sec. 4-6-11.
Rigging up.
Helena Oil & Gas Co.'s No. 1-B Graham, 330 ft. S and W NE cor. NE NW Sec. 20-9-13.
S.D. 2,000 ft.
Lawson-Leavell's No. 3 Bank of P. H., 330 ft. S and E, NW cor. NW NE Sec. 29-9-13.
Set 7-in. 1,493 ft.
Lawson-Leavell's No. 1 Whitney Corp., 330 ft. N and E. SW cor. NE SW Sec. 5-9-13.
Drlg. 2,365 ft.
Jack Lent's No. 1 Williams, Sec. 13-7-11.
S.D. 950 ft.
Dave McConnell's No. 1 Whiting Corp., Sec. 3-9-13.
Set 6-in. 1,460 ft.
Strickland et al's No. 1 Whitney Corp., Sec. 32-10-12.
Recmt. 8-in.; T.D. 1,590 ft.

TENSAS PARISH

Schumacher, tr.'s No. 1 Curry, Sec. 39-11-12e.
Arranging to deepen 3,750 ft.

UNION PARISH

Carbons Con.'s No. 8 fee, C NW NW SW Sec. 35-22-3e.
Set 6-in. 2,087 ft.
Interstate Nat. Gas Co.'s No. 6 Spencer, Sec. 2-20-3e.
Comp.; 1,500,000 ft. of gas 2,154 ft.
Southern Carbon Co.'s No. 66 fee, 660 ft. S. 1,980 ft. E, NW cor. Sec. 5-20-4e.
Derrick.

ARKANSAS
ARKANSAS COUNTY

Grand Prairie Realty Co.'s No. 1 Fischer, 200 ft. S and E, NW cor. NE NW Sec. 6-6s-4w.
S.D. 2,900 ft.

ASHLEY COUNTY

J. D. Houseman et al's No. 1 Boreine Farms, 660 ft. S and W, NE cor. Sec. 1-18-8.
Rigging up.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26.
S.D. 1,992 ft.

LAFAYETTE COUNTY

W. H. Harvey's No. 2 Allen, Sec. 18-19-24.
S.D. for fuel 1,500 ft.
Kamon & Neely's No. 1 Cockran, NW cor. SE SW Sec. 26-19-25.
Drlg. 2,210 ft.
Riggs Bros.' No. 1 Dubose, SE cor. SW NW Sec. 35-15-24.
S.D. 1,000 ft.

LONOKE COUNTY

J. G. Strahan's No. 1 Hardin, Sec. 18-2s-7w.
S.D. 1,780 ft.

MILLER COUNTY

Ed Donohue's No. 2 Beck, Sec. 33-15-26.
Junked hole; skidded over.
Duluth-Ark. Oil Co.'s No. 4 Beck, SE cor. SE SW Sec. 34-15-26.
W.O.S.R. 2,941 ft.
M. D. K. Fitzwater's No. 1 E. H. Beck, 150 ft. N and E, SW cor. NW SW Sec. 34-15-26.
Moving in rig.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27.
S.D. 3,177 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E. SW cor. SW NE Sec. 24-14-28.
S.D. 3,167 ft.
King Oil Corp.'s No. 1 Anderson, 350 ft. E. 200 ft. S. NW cor. SW NE Sec. 16-14-27.
Coring 1,605 ft.
C. V. Lens' No. 6 Dale, 273 ft. N, 430 ft. E, SW cor. SE NW Sec. 24-15-26.
Moving in rig.
Magnolia Pet. Co.'s No. 7 Olivet, 330 ft. S and W, NE cor. NW Sec. 3-16-26.
Dry and abd. 2,947 ft.
A. C. Roan's No. 1 Frost Est., 150 ft. N and W, SE cor. SE SW Sec. 8-15-26.
Set 10-in. 120 ft.
Lee Timberlake's No. 1 Frost Est., 330 ft. N and E. SW cor. SW SE Sec. 27-15-26.
Coring 2,477 ft.
John Wrather's No. 2 H. E. Beck, 330 ft. N and W, SE cor. SW SE Sec. 34-15-26.
Dry and abd. 2,981 ft.

OUACHITA COUNTY

F. A. Book et al's No. 1 Arnold, Sec. 34-15-16.
S.D. 2,032 ft.
S. J. Carnes' No. 1 L. Caldwell, 330 ft. S and E. NW cor. Sec. 12-14-19.
S.D. 102 ft.
T. J. Gaughan's No. 1 J. Humphrey, 330 ft. N and E, SW cor. NE NE Sec. 30-13-17.
Rigging up.
Kraft Oil Corp.'s No. 1 Rath & Cartier, 330 ft. S and E, NW cor. SW SW Sec. 32-13-17.
S.D.; W.O. 1,428 ft.
J. D. Reynolds' No. 1 M. Bragg, 330 ft. N and E, SW cor. NW SE Sec. 25-13-18.
Set 6-in. 1,372 ft.; T.D. 1,390 ft.

UNION COUNTY

Alice-Sidney Oil Co.'s No. 1-B E. F. Gregory, 330 ft. N and W, SE cor. NW SW Sec. 10-17-14.
Set 10-in. 131 ft.; drlg. 2,070 ft.
J. E. Crosbie, Inc.'s No. 1 W. E. Gregory, 330 ft. S and E, NW cor. NE Sec. 15-17-14.
T.A. 3,502 ft.
J. E. Crosbie, Inc.'s No. 2-A E. F. Gregory, 330 ft. N and E, SW cor. NE SW Sec. 10-17-14.
Coring 3,327 ft.
Gardy Drlg. Co.'s No. 1 Craig, Sec. 35-17-15.
Coring 2,200 ft.
Gulf Ref. Co.'s No. 49 L. Werner, 4,620 ft. N, 60 ft. E, SW cor. Sec. 5-16-16.
Set 16-in. 98 ft.; drlg. 318 ft.
Reuter Oil Co.'s No. 2 Vines, NW cor. SW SE Sec. 29-18-14.
D.D. to 3,216 ft.; W.O.S.R.
H. L. Hunt's No. 15 E. F. Gregory, 330 ft. N and W. SE cor. Sec. 10-17-14.
Coring 5,185 ft.
H. L. Hunt's No. 18 E. F. Gregory, 330 ft. N and E, SW cor. Sec. 11-17-14.
Derrick.
Mrs. R. K. Jones et al's No. 1 Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Set 7-in. 2,746 ft.; T.D. 2,765 ft.
Lion Oil Ref. Co.'s No. 6 H. L. Rowland, 330 ft. S and W, NE cor. Sec. 15-17-14.
T.A. 3,427 ft.
Marine Oil Co.'s No. 7-A W. B. Thompson, 330 ft. N and W, SE cor. SW SE Sec. 3-18-13.
Rigged up and S.D.
Joe Modisette's No. 1 Hill, Sec. 6-18-13.
Set 12½-in. 152 ft.
Joe Modisette et al's No. 1 D. S. Sturdevant, 330 ft. N and W, SE cor. Sec. 6-18-13.
Set 12½-in. 188 ft.
C. E. Murdock's No. 9 J. M. Gregory, C NW NE SE Sec. 10-17-14.
Dry and abnd. 3,453 ft.
C. E. Murdock's No. 1 R. Pumphrey, C SW NW NE Sec. 11-17-14.
Derrick.
Reuter Oil Co., Inc.'s No. 1 J. L. Kinard, 330 ft. S and E, NW cor. SE NW Sec. 32-18-14.
Pumping 2,189 ft.; no gauge.
Geo. L. Pace's No. 1 Union Saw Mill Co., 330 ft. S and W, NE cor. NE SW Sec. 24-18-13.
Coring 3,001 ft.
Grady Vaughn's No. 1 T. B. Rowland, 330 ft. S and E, NW cor. Sec. 14-17-14.
Derrick.

MISSISSIPPI
AMITE COUNTY

Mineral Resources, Inc.'s No. 1 Andersen, C NE NW Sec. 14-3n-3e.
S.D. 550 ft.

BOLIVAR COUNTY

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
S.D. 20 ft.

CLARKE COUNTY

Clarke County Oil Co.'s No. 1 Dora Butler, C SW SW Sec. 15-3n-16e.
Set 10-in. 62 ft.

HARRISON COUNTY

Big Ridge Oil Co.'s No. 1 Hinzin, NE Sec. 13-7s-10w.
S.D.; W.O. 1,100 ft.

HINDS COUNTY

Bob Weaver's No. 1 T. Russell & Oparka, C NW SW NE Sec. 26-6n-1e.
Rigging up.

ISSEQUENA COUNTY

Pelican Oil & Gasoline Co.'s No. 1 Martin & Bender, 300 ft. S and E, NW cor. Sec. 11-12n-8w.
S.D.; curing titles, 3,227 ft.

JONES COUNTY

Snow-Black Pet. Co.'s No. 1 Fox, 400 ft. N, 750 ft. W, SE cor. SE SW Sec. 30-7n-12w.
Rigging up.

LAUDERDALE COUNTY

Bob Dalton's No. 1 Bounds, Sec. 34-7n-15e.
Set 10-in. 560 ft.; S.D.; W.O.

MONROE COUNTY

P. J. McAlpine's No. 1 Frank Rye, Sec. 15-15s-17w.
S.D. 2,910 ft.
P. J. McAlpine's No. 1 Crook, 1,090 ft. S 90 ft. W, NE cor. Sec. 15-13s-13w.
Drlg. 1,807 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, SW cor SW SE Sec. 24-2n-9e.
Partly rigged up and S.D.

WARREN COUNTY

H. W. Elliott et al's No. 2 R. L. Parker, 780 ft. E, 1,670 ft. S, NW cor. Sec. 14-14n-1e.
Set 7-in. 820 ft.

WASHINGTON COUNTY

Perkins & Dees' No. 1 Lee, 1,500 ft. E. 500 ft. N, SW cor. Sec. 33-15n-3w.
Set 10-in. 300 ft. and S.D.

WINSTON COUNTY

Jack Vale et al's No. 1 Moody, 713 ft. N. 667 ft. E, SW cor. NW SW Sec. 3-13n-14e.
Drlg. 954 ft.

La.-Ark. Proven Fields

NORTH LOUISIANA
CADDO—BLANCHARD

M. Segall's No. 5 Sharpe, Sec. 11-18-16.
Rigged up and S.D.

CADDO—RODESSA

United Gas Pub. Ser. Co.'s No. 1 Fosque Unit, 1,320 ft. N and E, SW cor. Sec. 33-23-16.
Drlg. 3,500 ft.
United Gas Pub. Ser. Co.'s No. 1 Johnson Unit, 1,245 ft. S, 1,365 ft. W, NE cor. Sec. 26-23-16.
Location.

SABINE PARISH—ZWOLLE

Alexander & Crane's No. 1 Fogman, SE cor. N½ SW NE Sec. 18-7-11.
Set 6-in. 2,378 ft.
Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW SE Sec. 12-7-11.
S.D. 2,120 ft.
H. C. Maulding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
Rigging up.
H. C. Maulding's No. 2 DeLatin, 330 ft. S and E, NW cor. NE SE Sec. 3-7-11.
S.D. 2,250 ft.
K. C. Peterson et al's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW NW Sec. 2-7-9.
Derrick down.
Tex.-La.-Ark. Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 3-8-12.
S.D. 2,742 ft.

EAST TEXAS (BORDER COUNTIES)
HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, E. D. Spain Sur.
P.B. to 3,524 ft.

MARION COUNTY

Ed S. Holman's No. 1 Henderson, R. Bennington Sur.
Drlg. 2,710 ft.

PANOLA COUNTY

R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Set 10-in. 64 ft.
Fred Stovall Drlg. Co.'s No. 1 H. D. Ivey, P. Martin H.R.S.
S.D. for csg. 1,980 ft.
Thomason Drlg. Co.'s No. 1 Cadenhead, Jas. Smith Sur.
Drlg. 2,550 ft.

SHELBY COUNTY

Cliff Stovall's No. 1 Pickering Lbr. Co., C H. Patterson Sur.
S.D.; rig repair, 1,485 ft.
O. P. Bush, trustee's No. 1 Pickering Lbr. Co., P. W. Harvey Sur.
S.D. 730 ft.

ALABAMA
CONECUH COUNTY

Ray L. Eastabrook's No. 1 Miller Mill Co., W½ NE Sec. 1-4n-12e.
Dry and abd. 4,831 ft.

COVINGTON COUNTY

Geometer Prod. Corp.'s No. 1 Culbreath, SW cor. SW NE Sec. 8-2n-14e.
Drlg. 3,300 ft.

HOUSTON COUNTY

Rice O. & G. Co.'s No. 1 Oakley est., SE cor. NW SW Sec. 9-3n-29e.
S.D.; W.O. 2,506 ft.

LAMAR COUNTY

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 22-15s-16w.
S.D. 4,182 ft.

WALTON COUNTY—FLORIDA

Geometer Oil Corp.'s No. 2 Walton Land & Timber Co., Sec. 10-1s-19w.
Rigging up.

NEW AND IMPROVED EQUIPMENT

Appliance for Regrinding Chasers Offered by Landis

The Landis Machine Co., tap division, Waynesboro, Pa., has placed on the market the fixture or attachment illustrated for use in regrinding or sharpening chasers.

The correct grinding or sharpening of collapsible tap chasers is vital to the efficient performance of these tools. Improperly ground chasers frequently mean poor threads and short life. It is always

important that the rake angle be ground suitably for the material being tapped as different rake angles are required for the different materials.

The device is composed of three main parts: First, a base adapted for fastening to the table of most makes of tool and cutter grinding machines. Attached to the base is the second part, the swivel bracket, which is adjustable in a horizontal plane in relation to the base. The bottom part of the swivel bracket is graduated to permit obtaining the desired degree of azimuth, which is the angle at which the chaser is set from the parallel. The third part is the vise base, which is clamped to the swivel bracket and which holds the chaser while being ground. The vise base can be rotated in the vertical plane and securely clamped at any angle as determined by graduations on the top of the swivel bracket. This permits setting the chaser at the proper elevation for grinding the gun tap in the throat section of the rake.

The vise base is provided with a milled flat which will accommodate all sizes of tap chasers. The chaser is held in place by an adjustable spring clamp and locked with a hand screw.

The appliance is suitable for grinding all sizes of chasers employed in the Landis style LT collapsible taps, the style LM receding chaser collapsible taps and also those employed in the Victor collapsible and receding chaser taps formerly manufactured by the Landis Machine Co. or the Victor Tool Co.

NEW REGIONAL HEADQUARTERS

The Worthington Co., Inc., has established a Pacific Coast regional headquarters in Los Angeles, which will center jurisdiction and development of the corporation's business now covered by district offices in Seattle, San Francisco, Los Angeles and El Paso. This headquarters will supplement the district offices. C. E. Wilson, vice president, in charge of this Pacific Coast division, has moved his office from New York to the new headquarters at 510 West Sixth Street, Los Angeles.

BRIDGEPORT HAS NEW OFFICE

The Bridgeport Machine Co., Wichita, Kans., has opened offices at 1401 Magnolia Building, Dallas, Tex. Fred Parks is in charge of this division and F. R. House, who resides in Fort Worth, is representative in Dallas and Fort Worth.

Notes About Trade Literature

A 16-page bulletin entitled "Bailey Feed Water Regulators" and designated as No. 83, is being distributed by Bailey Meter Co., Cleveland, Ohio.

—

The Lunkenheimer Co., Cincinnati, Ohio, is mailing on request Booklet F-533A, describing two new designs of air nozzles with renewable non-metallic discs.

—

Silent Hoist Winch & Crane Co., 762 Henry Street, Brooklyn, N. Y., has for distribution its Bulletin No. 45, a 12-page publication on Krane Kar and Krane Krawler.

—

A bulletin on Worthington centrifugal pumps, single-stage volute, type R, will be sent by the Worthington Pump & Machinery Corp., Harrison, N. J., to those who ask for it.

—

The Lucey oil-country boiler with rivetless firebox is described in Bulletin 141 which the Lucey Products Corp., Tulsa, is mailing on request.

—

Authentic data on the various members of the Enduro 18-8 family of stainless steels are contained in an attractive booklet of 16 pages announced as ready for distribution by the Republic Steel Corp., Massillon, Ohio.

—

Roots-Connersville Blower Corp., Connersville, Ind., builder of liquid pumps for more than 50 years, has issued Bulletin 260-B13 descriptive of its line of domestic water systems for shallow wells, cisterns, etc.

The Universal Motor Co., Oshkosh, Wis., is sending to inquirers literature explaining its new rubber-cushioned electric power and lighting plants which are said to eliminate vibration.

—

A new universal meter designed to measure any fluid under any industrial condition is described in a six-page bulletin prepared by the Foxboro Co., Foxboro, Mass.

—

The Hill non-condensable gas separator, which is said to remove all non-condensable gases from the refrigerating system while the system is in full operation, without loss of time or of ammonia, is discussed in literature sent on application by the Hill Manufacturing Co., 370 Lexington Avenue, New York.

—

Bethlehem light sections for use in construction of floors and other parts of buildings are the subject of a 16-page booklet obtainable from the Bethlehem Steel Co., Bethlehem, Pa.

—

The latest additions to its line of tools are contained in a new 242-page catalog issued by the Armstrong Brothers Tool Co., Chicago. Many appliances used in the oil industry are included.

—

Binks Manufacturing Co., 3106 Carroll Avenue, Chicago, offers an eight-page bulletin on indoor forced-draft spray cooling towers and a similar eight-page bulletin devoted to atmospheric spray cooling towers for air conditioning and refrigeration.

New Christmas Tree Has Greater Structural Strength

Oil Center Tool Co., Houston, Tex., announces production of a streamline christmas tree of conventional type which the manufacturers say has a structural strength more than 75 per cent greater than that of similar type trees of earlier design. Through use of all-male and male-and-female gate valves in the assembly all nipples are eliminated thereby cutting down the height, width and weight of the tree to that extent.

The master gate, above the tubing head, has a male connection to the tubing head and the cross above. This provides a 4-inch thread connection more than 75 per cent stronger than a connection made with either 2 or 2½-inch hydraulic nipples, and also eliminates two thread connections. Above the cross a combination male-and-female valve is used, the male end of which screws into the top of the cross. Valves of the same nominal size as the tubing in the well may be used, since the well can be swabbed through the valves because of the absence of nipples, which normally reduce the swabbing opening through the christmas tree.

Side arm valves as shown, are combination male-and-female, the male end screwing directly into the cross, again eliminating two thread connections on each valve. No tie-rods are necessary with this type of tree, as the male-end valve connection provides threads almost twice as large in diameter as normal. Another advantage pointed out by the manufacturers is the back pressure exerted by male-end valves.

When 2½-inch valves are used on the flow arms, for instance, the opening into the valve is full 2½ inches. The discharge opening is reduced in proportion to the thickness of the nipple used to connect flow-line arms to the valves. This tends to reduce valve cutting.

Men Well Known in the Equipment Field

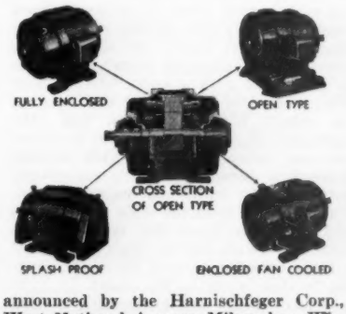
J. H. Howard has been appointed vice president and general manager of the Globe Oil Tools Co. to succeed J. C. Wright, who resigned. Mr. Howard, for-

J. H. HOWARD

merly production manager of the company, has been connected with Globe since its inception. Before that he was chief engineer for the W.K.W. Co., and previous to that had been connected with the General Petroleum Corp.

Harnischfeger Announces New Convertible Motors

A new line of convertible squirrel-cage and slip-ring induction motors, offering all standard frequencies for service ranging from 110 to 220 volts, has been



announced by the Harnischfeger Corp., West National Avenue, Milwaukee, Wis.

Built in accordance with the standards adopted by the National Electrical Manufacturers Association, the outstanding feature of these new P&H motors is their ready convertibility from open-type to fan-cooled, splash-proof or totally enclosed construction. This is accomplished through the design of the frame, end heads and bearings to permit interchangeability in the four mentioned types of single or multi-speed squirrel-cage and slip-ring motors.

The stator laminations are stacked between heavy steel end rings and the entire assembly then is welded to the frame. This construction provides rigidity. The rotor windings are assembled from round or rectangular hard drawn copper bars placed in the rotor slots without insulation or slot wedges.

Making Headway in Fight on West Texas Corrosion

Corrosion of steel tankage pipe lines and other steel equipment caused by the high content of sulphur in the crude has been a major problem in West Texas, costing operators, according to estimates, over $1,000,000 annually, in deterioration of equipment. Constant reconditioning of pipe lines has been necessary. Tankage has been the subject of an exceedingly large part of the study and experimentation, due perhaps to its greater accessibility.

It is stated that steel tanks designed to last 20 years have had an average life of two to five years. Bottoms of 55,000-bbl. tanks have been a complete loss after three years. Instances have been reported where stock tanks stood up on a year or less. In the Hendrix Pool, one operator junked four new tanks after 100 days' service, and other extreme instances are on record where tanks lasted only 90, 60 and in one case 21 days. The tanks in this last-named instance, however, were used in treating the oil.

Severity of the condition has varied in the different districts, but it has been a major problem in all of the pools in the so-called "sour crude" area, including Crane, Reagan, Pecos, Winkler and other counties. Every tank in West Texas which has been opened for inspection has shown so far as is known the effects of sulphur corrosion in some degree, with a few exceptions where extraordinary protective measures had been employed. Large companies have spent as high as $4,500 in measures to protect the bottom of a single large tank.

Paint companies and manufacturers of steel tanks have spent much time and money in studying the conditions and attempting to combat them with prepared coatings of various kinds. This has been a difficult problem, as sulphur and sulphur gas attack practically all types of oil commonly used to hold pigments together in prepared coatings, and also affect most pigments.

The most effective research work has been done on the ground, since it was found that materials gathered in the fields and shipped to distant laboratories for analysis in working out a solution went through chemical changes in transit.

Special protective coatings developed have met with varying degrees of success. Some of them have made pronounced headway towards alleviation of the troubles.

Engineers for the Tnemec Co., Inc., made an exhaustive study of the causes of sulphur corrosion in this area, starting with a study of the metal itself. Their report is highly informative, pointing out that new metal has a coat of mill scale which is the ashes of metal and clings to the metal with a tight friction hold. This scale does not expand and contract in unison with the metal, and thus eventually it works loose. Also it is porous and when saturated with sulphur deposits it becomes virtually an electric battery from which currents are generated flowing from the scale to the metal and returning from the metal to the scale. Where the current leaves the metal it takes with it a part of the metal, causing in time a pit in the metal.

This company has developed a coating for tank interiors which, according to reports, is meeting with pronounced success. It is claimed that the product is a new departure in the paint industry, employing as a base a composition of gum and oils which insulates the surface from contact with the corrosive agents or currents and thus prevents action on the metal. It is asserted also that a metallic pigment has been found which resists the action of sulphur and sulphur gases. It is reported that bottom and side sheets of tanks already riddled with minute holes by corrosion have been reconditioned with this coating, which, because of its thick gummy consistency, plugs small holes, and that the tanks have then stood up in service over extended periods, the coating resisting the sour crude action without apparent deterioration.

Operators in West Texas are watching the performance of this and other new coatings with interest. It is becoming the fashion for tank openings where key experiments are being tried, to be attended by numerous representatives from other oil companies, as it is felt that the experimentation and research expended on this problem are bound in time to bring either a complete solution or a pronounced alleviation of the difficulty.

All engineers have been in agreement that a thorough cleaning of the metal is essential before any coating can be successful. Sulphur has an affinity for metal. It deposits on the scale and works into the pores of the metal and it is almost impossible to remove it, once it gets hold. Still this deposit must be removed before a preservative coating can be applied with any hope of real success.

CLASSIFIED ADVERTISING

Royalties—Production

NEW FEDERAL SECURITIES ACT SERVICE
Covers All Oil Royalty Offering Sheets and Working Interest Registrations Filed. Weekly Service Published in Washington where the Real News Originates. Send for Information Circular and Free Copy.
SECURITIES INFORMATION SERVICE, INC.
1020 Earle Building, Washington, D. C.

BETTER CLASS
MONTHLY PAYING ROYALTIES
Quoted Dealers Exclusively.
W. E. COOK
Suite 812, Palace Bldg., Tulsa, Okla.

PRODUCING OIL ROYALTIES
for dealers.
H. P. BOWEN
842 Kennedy Bldg., Tulsa, Okla.

Producing Oil Royalties
at wholesale.
ROBERT L. KINKAID, INC.
Petroleum Bldg., Oklahoma City, Okla.

Income Producing Royalties
Mid-Continent Field
Harry A. George
427 Perrine Bldg., Oklahoma City, Okla.

DEALERS IN ODD LOTS
EAST TEXAS AND VAN POOL
PRODUCING OIL ROYALTIES.
We Buy and Sell.
E. T. MARION REAL ESTATE CO.
407 Southwestern Life Ins. Bldg.
Dallas, Texas.

POTENTIAL ROYALTIES
We believe it is good business judgment to buy some Texas potential royalties and mineral interests, which have been selected by oil men who have the ability and are qualified and who have picked winners in the past. We have such offerings available. If interested, ask for map and copy of Securities Exchange offering report. Bank and commercial references.
J. F. MARION OIL COMPANY,
MAGNOLIA, BUILDING
DALLAS, TEXAS.

PRODUCING OIL Royalty paying monthly income in half acres and upwards at reasonable prices. Federal listed. S. J. Jewell, P. O. Box 35, Tulsa, Okla.

J. A. WOLF AND COMPANY
105 West Adams Street
Chicago, Illinois
Dealers in Oil Royalties since 1918.

VAN POOL — EAST TEXAS
Bought — Sold — Wholesale.
W. R. Brown & Co., Inc.
14 Prospect St., East Orange, N. J.

RANCH
35,000 acres, with all mineral rights, well improved, only $3.75 per acre in fee; situated in rain belt. Address R. B. HUMPHREY, Attorney-at-Law, 718 First National Bank Building, Dallas, Texas.

CALIFORNIA ROYALTIES
Have a place in your distribution.
Are you getting your share of nice
CALIFORNIA ROYALTY BUSINESS?

Well qualified and equipped organization wants outlet for interstate distribution. Will make exclusive connection with live organization having outlet for fair volume good royalties. Address Box G-591, The Oil and Gas Journal, 313 Union Oil Building, Los Angeles, California.

Own and Offer for Sale
PENNA. OIL AND GAS LEASES
Producing Royalties and Working Interests in the best producing areas.
ROBERT E. LEYENDECKER
341 Madison Avenue, New York, N. Y.

PRODUCING OIL ROYALTIES
Bought (Wholesale) Sold
Inquiries invited from Oil Companies, Bankers, Dealers.
M-K OIL COMPANY, INC.
20 Broad St. New York.

Royalties—Production

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood, P. O. Box 2261, Tulsa, Okla.

Mich. Oil and Gas Royalties Wholesale
WARD J. BLUNT
708 Second National Bank Bldg.,
Saginaw, Mich.

BROKERS — SALESMEN
Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. Complete set of Forms and Reports for filing with Securities and Exchange Commission accompanies every order. Inquiries invited.
B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo

WEST TEXAS—Ten acre royalty interest near drilling well, located in producing area, for one hundred dollars per acre base. Jones County fifty acre oil lease for ten dollars per acre. Address H. G. BAILEY, Box 644, Cisco, Texas.

Low priced leases Royalties near Permian Basin. Wildcats being drilled by Majors and Independents. 50 to 1 chances quick money. E Croft, Proctor, Texas

KANS., Okla., Tex. Producing Royalties. Also spreads under drilling wells. Merit Royalties, R No. 3, Topeka, Kans.

HAVE FOR SALE, good producing royalties in Van and East Texas. Own and will sell twenty acre lease Upshur County, East Texas Field, offsetting well that came in January 24th making 1800 barrels a day. First well must be started within ninety days. Have for sale unproven royalty under major companies in line of development. $4.00 an acre. Rentals paying 6% on your money beside good speculative value. Will buy royalty in Texas and Oklahoma. Any amount. P. R. Knickerbocker 3237 Westminster, Dallas, Texas.

VAN POOL OIL ROYALTY
Bought — Sold
67 Wall St., Suite 810, New York.

FORMULA Patent apl. in U. S. A. "Beverage" Brewery Product, over $200.-000. Royalty offer from State of Ill. Need money to complete. Will sell ½ Royalty interest in Canada or in Mexico and 1/96th Royalty in U. S. A. for $1,000.
WM. MENDELIN,
5231 Cornell Ave.,
Chicago, Ill.

ROYALTY NW 10, Lease SE 21. Both 14N-3W. MARY F. WILLIAMS, Box 82, Edmond, Oklahoma.

Leases—Production

Nineteen thousand acre 10-year-paid-up lease, Kinney Co., Texas, near location. $1.50 per ac. W. H. Carver, Uvalde, Tex.

20 ACRES Logan County, 23 T 15N 3W. 20 acres royalty Logan County, 5 T 16N R. 1W. W. V. SMILEY, 1536 N.W. Thirty-first Street, Oklahoma City, Oklahoma.

Leases—Production

HAVE 2830 acres in Leflore County can sell at $2 per acre; 360 acres of which mineral rights reserved by Government; abstract shows good title and tax paid. Have 2570 acres in McCurtain County can sell $2.50 per acre; no reservations; abstract shows good title and tax paid; can deliver on short notice; both good oil and gas gamble.
LUTHER CALAHAN
Idabel, Oklahoma.

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, N. Mex.

I OWN an interest in producing gas well now selling to the pipe line; I need $250; anyone furnishing me with this money, I will turn over to him sufficient of my holdings to pay him 4% or 5% monthly. Dr. Frank Dow, S. Main St., Fort Scott, Kans.

ATTENTION Oil Men, Investors: For lease, sections 12 and 13, Block A-47, Andrews County, Texas. In the heart of development. Make me an offer, five or ten year lease, 25c rental, best offer takes it. Owner, 1611 Pierce St., Amarillo, Texas.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

TREGO and Graham Co., Kansas, oil leases and royalties, at very low prices. J. E. LEADER, Wakeeney, Kansas.

NEW Mexico State oil leases, huge profits possible, small inv. TERMS. Up to date oil map of N. Mex. and late report on oil activities, 45c stamps. Fred Manley, Hobbs, New Mex.

FOR SALE oil and gas leases and production in shallow territory. Will make price on leases, drilling and casing one or more wells. W. P. HARLEY, Bowling Green, Kentucky.

FOR SALE oil and gas leases, and production, in Ohio, and West Virginia. Some fine blocks of acreage, low. rentals, long time leases, good market for gas, an opportune time to get into the natural gas business. WM. J. SNIDER, P. O. Box 253, Hundred, W. Va.

WANTED—Limited number lease and royalty dealers, brokers and salesmen to co-operate with sponsors in financing, through sale of leases, five thousand foot test on geologically and geophysically defined structure, Madison Parish, Louisiana. Excellent proposition for dealers capable of making quick distribution of their respective allotments; and a speculation of unusual merit for investors making commitments. Maps, prices and full information furnished upon request.
SOUTHERN LAND & EXPLORATION CORPORATION
REAVES BUILDING
TYLER, TEXAS.

NOTED GEOLOGIST has worked out structure in Northwest Alabama, on which he claims commercial production of oil and gas is a "lead-pipe cinch." For further particulars address F. P. BORDEN, Amory, Miss.

HALF interest in 100 acre lease lying across geologically esablished fault, with well drilled to pay depth, for $2500. Avg. producer initials over 2500 bbls. a month. Nicolle. geologists, Box 903, Houston, Tex.

HAVE in Kentucky several undrilled and untested structures leased for oil and gas. Have opportunity for big production. Want to get people to develop. F. L. JAMES, Albany, Clinton County, Ky.

DURING the past 30 years I have accumulated valuable producing Oil and Gas leases. My age and an automobile accident demand money. To those offering funds in amounts of $100 upwards, I have a very interesting prop. Dr. Frank Dow, 317 S. Main St., Fort Scott, Kans.

CLASSIFIED ADVERTISING

For Sale—Equipment

150—55,000; 37,500; 35,000 BBL. STEEL STORAGE TANKS

The largest stock of large storage tanks in the United States. Will quote prices, tanks cut down and re-erected any place in country or will make very attractive prices on sheets any thickness. All size tanks.

SONKEN-GALAMBA CORPORATION
64 North Second Street Kansas City, Kansas.

21 HIGH PRESSURE HAMMER-WELD TANKS

Same as new. Wall thickness ⅝ in.—head thickness ⅞ in.—Length 19 ft. 8 in. Diameter 4 ft. 2 in. Working pressure 150 pounds. Test pressure 300 pounds. Used until recently as gas receivers in a compression plant. Will sell individually or entire lot. Price slashed for immediate sale.

1—NATIONAL TRANSIT HOT OIL CHARGING PUMP

Steam driven; 10 x 16 x 5½ x 12; synchronized valve assembly; piston type; forged steel liquid end; 600-lbs. pressure; capacity 75 GPM; Temperature 700° F.; Fisher Governor; very good condition; slightly used. Bargain for quick sale.

BROWN-STRAUSS CORPORATION
PIPE — O. D. TUBES — REFINERY EQUIPMENT
1402-1720 Guinotte Ave. Kansas City, Mo.

PUBLIC SALE

To be held on the refinery grounds at Chanute, Kans.

10 A.M.
Monday, March 25, 1935

Complete plant of Altitude Petroleum Co.

Chanute, Kansas.

Equipment Includes:

5,000-Bbl. Skimming plant.

2—1,000-Bbl. Jenkins Cracking Plants.

150,000 Bbls. Steel Storage Tanks.

100 Pumps—all sizes.

Approximately 30 miles of pipe lines, to be sold complete or in part.

All equipment in good condition.

All bidders required to deposit $2,500 cashier's check.

For other information or inspection see watchman at plant, or write

P. O. BOX 391,
The Altitude Petroleum Corp.
Chanute, Kansas.

BARGAINS IN EQUIPMENT
4—Rathbun Jones, 300 HP Gas Engines. Complete 1000 KW Plant. Turbines, Boilers, etc. 150 HP Fairbanks-Morse style VA Diesel. And almost anything else you need.
MISSISSIPPI VALLEY EQUIPMENT COMPANY,
501 Locust, St. Louis.

FOR SALE—10 bbl. settled Bartlesville sand production in Osage County, 18 locations, depth 1340 ft.
P. O. BOX 553,
Bartlesville, Okla.

FOR SALE—40 H.P. Weber gas engine with roller bearing reverse clutch. 4½"x10" Roller Bearing Worthington power pump. General Machine & Supply Co., Wichita Falls, Texas.

FOR SALE
One Prescott duplex, double acting, reciprocating, plunger type, field pump.

Number of plungers	4
Diameter of plungers	4½"
Length of stroke	12"
Pinion gear	17 T
Master gear	106 T
Working pressure	1000 lbs.
Weight complete	16000 lbs.
Length	13 ft.
Width	6 ft. 1 in.
Height	3 ft. 6 in.

This unit, which is good as new, has a capacity of 222 barrels per hour at 48 strokes and 800 lbs. pressure.
H. F. SWINDLE
P. O. Drawer 3162
Kansas City, Mo.

OIL WELL Electric Motors rewinding our specialty. Picked up and delivered. Rawls Electric Works, Abilene, Tex.

Classified Rates

Classified Advertising rates are 35 cents a line for the first insertion and 25 cents a line for each additional insertion, PAYABLE IN ADVANCE.

Six words usually constitute a line.

Compute white space at line rate.

Minimum of three lines accepted.

	1 time	2 times	3 times	4 times
3 lines	$1.05	$1.80	$2.55	$3.30
4 lines	1.40	2.40	3.40	4.40
5 lines	1.75	3.00	4.25	5.50
6 lines	2.10	3.60	5.10	6.60
7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
10 lines	3.50	6.00	8.50	11.00

To avoid delay be sure to send remittance with copy. Over payments will be refunded. One time insertions will not be run until fully paid.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

For Sale—Equipment

FOR SALE—Bull wheels, calf wheels, chain driven sand reels, blow out preventors, drilling-manifold gates, 1500 barrel bolted tanks. I. T. I. O., Bartlesville, Oklahoma.

KEYSTONE Driller, size 5½ equipped with new McCormack-Deering Gas Engine, also tools, $1000.00. Address Keystone, Box 1123, Texarkana, Tex.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

SECOND HAND CASING
All sizes. Complete Stocks New and Used drilling equipment.
IVERSON TOOL CO.
Box 1227, Tulsa, Okla., Ph. 4-9127

60 MILES of 3" line pipe, like new. Part of pipe 9 lb. tubing, stencil marks still legible. Price 18c per ft. f.o.b. cars Clarksburg. Wright Brothers, Clarksburg, W. Va.

STORAGE Tanks — Bubble Towers, Worthington centrifugal hot oil pump, Blackmer Rotary Pump — Machine Shop equipment, including welding outfit 7 x 6 Sullivan Air Compressor, 400' sectional loading rack, Union & Gardner Steam Pumps.

TEXO EQUIPMENT CO.,
414 Beacon Life
Phone 2-7570 Tulsa, Oklahoma.

FOR SALE
1 Complete Natural Gasoline plant, daily capacity 1,500 Gal. Equipment includes 3 type 8—40 H.P. Bessemer engines, storage tanks, several miles of 2, 3 and 4 inch line pipe, loading rack, etc. Plant now in operation. Address Box G-590, The Oil and Gas Journal, Tulsa, Okla.

FIVE 300-amp. engine-driven Lincoln welders. Also stock of electric motor-driven welders. Service Co., 3732 Cedar, Cleveland, Ohio.

Display Rates

Classified Display Advertising set in similar style to this Ad or in two-column style is as follows:

1 inch	1 time	$5.00
1 inch	13 times	4.50
1 inch	26 times	4.00
1 inch	52 times	3.50

PAYABLE IN ADVANCE
MONTHLY

One-point borders and 10-point capitals are allowed; larger type not accepted.

To avoid delay be sure to send remittance with copy. Over payments will be refunded. One time insertions will not be run until fully paid.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma.

For Sale—Equipment

GAS ENGINES: One 110 H.P. 2 Cylinder horizontal Bessemer $900, also 250 H.P. vertical Foose $1800. One 175 K.W. generator and switchboard $1000. Engines excellent condition and priced loaded on cars at Seller's Arkansas plant. Write F. S. Kelly, 949 Delaware, Shreveport, La.

Equipment Wanted

WANTED — Couplings, Thread Protectors—14" and larger. In good condition. Address Box G-561, The Oil and Gas Journal, Tulsa, Okla.

Financing

JAMES E. MILLER CO., 207½ E. Third St., Tulsa, Okla., will co-operate with responsible parties seeking aid in financing projects of higher order.

PROSPECTUSES prepared and deals shaped up for registration or exemption under Federal Security Act. Fee basis. John Morris, Seventh Floor, 1237 Market St., Philadelphia, Pa.

Situations Wanted

SALESMAN - CHEMIST. Young man seven years' experience Refinery, laboratory and Sales, covered jobber trade in five southwest states. Traveling Illinois and Indiana at present for major company. Desire change to the southwest. Sales or research chemist. Best of reference. Address Box G-571, The Oil and Gas Journal, Tulsa, Okla.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Incorporations

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE CHARTERS — Fee small; submitted forms. Chas. G. Guyer, 901 Market Street, Wilmington, Del.

For Sale—Maps

OIL MAPS
The best ownership and general-area maps, large or small scale found in the oil industry; cover any active County or Parish or "hot spot" in Texas or Louisiana.
W. W. Zingery, Houston, Tex.
The World's Best Oil Map Maker.

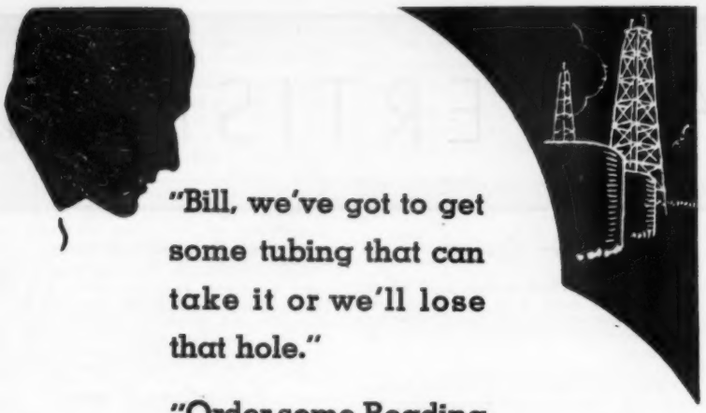
Business Opportunities

ILLINOIS CORPORATION (all stock held by one person) desires sell half interest for very reasonable consideration in active business compounding and marketing lubricating oils, greases, gasoline and kerosene. Plant located 150 miles from Chicago, consists of adequate storage, boiler, compounding kettles, warehouse, office, trucks, etc. Investor desired to take charge office and financial matters. Additional capital required purchase raw materials for Spring business. Welcome thorough investigation. Address Box G-592, The Oil and Gas Journal, Tulsa, Oklahoma.

Reliable oil operator in West and Central Texas can use capital on liberal terms for the purpose of more rapidly developing new oil pool. Will borrow money on security or take in partner. Good references furnished. Unless you have a bonafide interest and can furnish up to $50,000, do not answer this ad. Address Box G-580, The Oil and Gas Journal, Tulsa, Oklahoma.

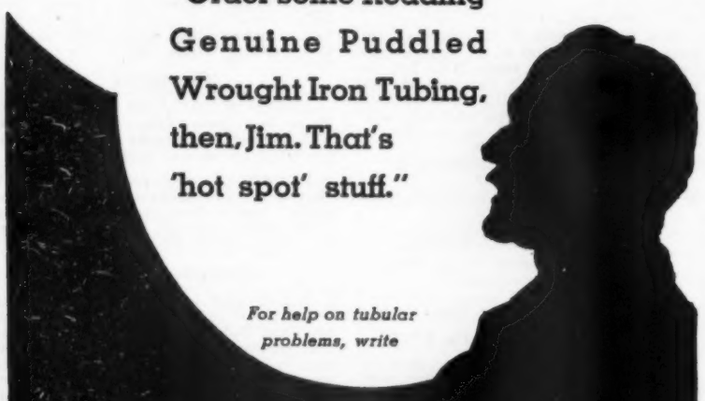
Patent Attorneys

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form:
"Evidence of Conception,"
Instructions "How to Establish Your Rights" and complete information FREE!
LANCASTER, ALLWINE & ROMMEL
418 Bowen Building,
Washington, D. C.



"Bill, we've got to get some tubing that can take it or we'll lose that hole."

"Order some Reading Genuine Puddled Wrought Iron Tubing, then, Jim. That's 'hot spot' stuff."



For help on tubular problems, write

READING IRON COMPANY
PHILADELPHIA

SCIENCE AND INVENTION HAVE NEVER FOUND A SATISFACTORY SUBSTITUTE FOR GENUINE PUDDLED WROUGHT IRON

VELLUMOID

Wherever you find the word VELLUMOID, whether on sheet packing or gaskets, you can rest assured that you have a quality product which will stand the gaff of the hardest service.

Always uniform, with just the right amount of compressibility, it is always ready for use.

Look For the Word

"VELLUMOID"

THE VELLUMOID COMPANY
Detroit, Mich., and Worcester, Mass.

Index to Advertisers

A
Abercrombie, J. S., Co. 65
Abott, Proctor & Paine 51
Air Reduction Sales Co. ....
Air Spray Painting Co., Inc. 65
Allegheny Steel Co. 82
Allsteel Products Mfg. Co., The .....
American Cable Co. .....
American Cast Iron Pipe Co. 78
American Iron & Machine Works Co.
American Meter Co. .....
American Steel & Wire Co. .....
Axelson Manufacturing Co. 74

B
Baash-Ross Tool Co. .....
Bache & Co., J. S. 50
Baker Oil Tools, Inc. 6
Barold Sales Co. .. ..
Barrett, Co., The .....
Barret, William M., Inc. .....
Bethlehem Steel Co. .....
Boston Woven Hose & Rubber Co. ..
Bradford Motor Works, Inc. .....
Brewster Co., Inc. .....
Bridgeport Machine Co. 42
Broderick & Bascom Rope Co. .....
Brown Instrument Co., The .....
Brown-Strauss Corporation .....
Byron Jackson Co. .....

C
Cameron Iron Works, Inc. 65
Canalizo, Witkin & Co. 50
Case, J. I., Co. 64
Caterpillar Tractor Co. .....
Chain Belt Co. .....
Chaplin-Fulton Mfg. Co., The 79
Chapman Valve Mfg. Co., The .....
Chemical Process Co., Inc., The ....
Chevrolet Motors Co. 48
Chicago Bridge & Iron Works ....
Clark Bros. Company .....
Classified Advertising 95
Cleveland Hardware & Forging Co., The .....
Combustion Engineering Co., Inc. .....
Commodity Exchange, Inc. 51
Continental Supply Co., The 32-A
Cooper-Bessemer Corp., The 37
Coppus Engineering Corp. .....
Corona Products, Inc. .....
Crane Co. .....
Crutcher, Rolfs & Cummings .....
Curtin, W. H., Co. .....

D
Darling Valve & Mfg. Co. 2
Dart, E. M., Mfg. Co. 74
Davis Regulator Co. 75
Devine, J. P., Mfg. Co., Inc. 79
Doheny Stone Drill Co. ....Front Cover
Dowell Incorporated .....
Dresser, S. R., Mfg. Co. .....
DuPont DeNemours & Co., Inc., E. I.

E
Eagle-Picher Lead Co. .....
Economy Electric Lantern Co. .....
Edward Valve & Mfg. Co., Inc., The..
Emsco Derrick & Equipment Co. ....
Everstick Anchor Co. 66

F
Fairbanks-Morse & Co. .....
Falk Corporation, The 32-A
Fenner and Beane 51
Filtrol Co. of California 67
Fisher Governor Co. .....
Fluid Packed Pump Co. .....
Four Wheel Drive Auto Co., The ....
Foxboro Co., The .....
Frick-Reid Supply Corporation .....

G
Garlock Packing Co., The .....
Gasoline Products Co., Inc. .....
Gates Rubber Co. .....
Gearench Mfg. Company .....
General American Transportation Corp. .....
General Electric Co. .....
General Motors Truck Co. .....
Goodyear Tire & Rubber Co., Inc. ...
Gott, H. P., Mfg. Co. .....
Graver Tank & Mfg. Corp. .....
Gray-Wilmerding 50
Great Lakes Fuel Corporation ..... (Distributors for Great Lakes Coal & Coke Co.) .....
Greenspon's Son, Jos., Pipe Corp. ...
Guiberson Corp., The .....
Gulf Refining Co. 55

H
Hagerling, Chas. J. 75
Halliburton Oil Well Cementing Co...
Hanlon-Buchanan, Inc. .....
Harrisburg Pipe & Pipe Bending Co..
Hazard Wire Rope Company 81
Heeter, C. M., Sons Co. 81
Heiland Research Corporation 67
Henle, S., Inc. 51
Hentz & Co., H. 51
Hercules Motors Corporation .....
Hewitt Rubber Corporation .....
Hills-McCanna Co. .....
Hinderliter Tool Co. .....
Hirsch, Lilenthal & Co. 50
Houston Oil Field Material Co., Inc. . 65
Hubbard Bros. & Co. 50
Hughes Tool Co. .....Back Cover
Humble Oil & Refining Co. .....
Hydril Co. .....Front Cover

I
Illinois Steel Co. .....
Ingersoll-Rand Company .....
International Harvester Co. of America

J
Jarecki Manufacturing Co. .....
Jenkins Bros. .....
Jerguson Gage & Valve Co. .....
Johns-Manville Corporation .....
Jones & Laughlin Steel Corp. 47
Jones Co., The S. M. .....

K
Kellogg, M. W., Co., The 23
Kennedy Valve Mfg. Co., The .....

L
Landis Machine Co., Inc. 1
Layne & Bowler Company 39
Larkin Packer Co. .....
Lincoln Electric Co., The .....
Linde Air Products Co., The .....
Link-Belt Company .....
Louisiana Supply Co. .....
Lucey Products Corp. 77
Ludlow Valve Mfg. Co., The .....
Lufkin Foundry & Machine Co. .....
Lummus Co., The 4
Lunkenheimer Co., The .....

Mc
McCord Radiator & Mfg. Co. .....
McEvoy, J. H., & Co. .....

M
Macwhyte Co. .....
Maloney Tank Mfg. Co. .....
Manhattan Rubber Mfg. Division, The
Martin-Decker Corp. .....
Mason-Neilan Regulator Co. .....
Mepham Corp., Geo. S. .....
Merco Nordstrom Valve Co. ....Inside Front Cover
Miller, Max B., & Co., Inc. .....
Mission Mfg. Co. 65
Monsanto Chemical Co. .....
Moore, Lee C., & Co., Inc. .....
Murray-Brooks Hdwe. Co., Ltd. .....
Muskogee Iron Works ....Inside Back Cover

N
National Bank of Tulsa .....
National Lead Co. .....
National Supply Co., The .....
National Transit Pump & Machine Co. 25
National Tube Co. 41
New Deal Specialty Co., Inc., The ..
Norvell-Wilder Supply Co. .....
Nugent & Co., Wm. W. .....

O
Oil Center Tool Co. .....
Oceco Division of The Johnston & Jennings Co. .....
Oil Well Supply Co. 3
Oklahoma Gas & Electric Co. .....
Orvis Brothers & Co. 50
Oxweld Acetylene Co. .....

P
Parkersburg Rig & Reel Co., The ....
Parsons Co., The Ralph M. .....
Penberthy Injector Co. 19
Petroleum Building .....
Pittsburgh Equitable Meter .....
Pittsburgh Steel Company .....
Post & Flagg 50
Prest-O-Lite Co. .....

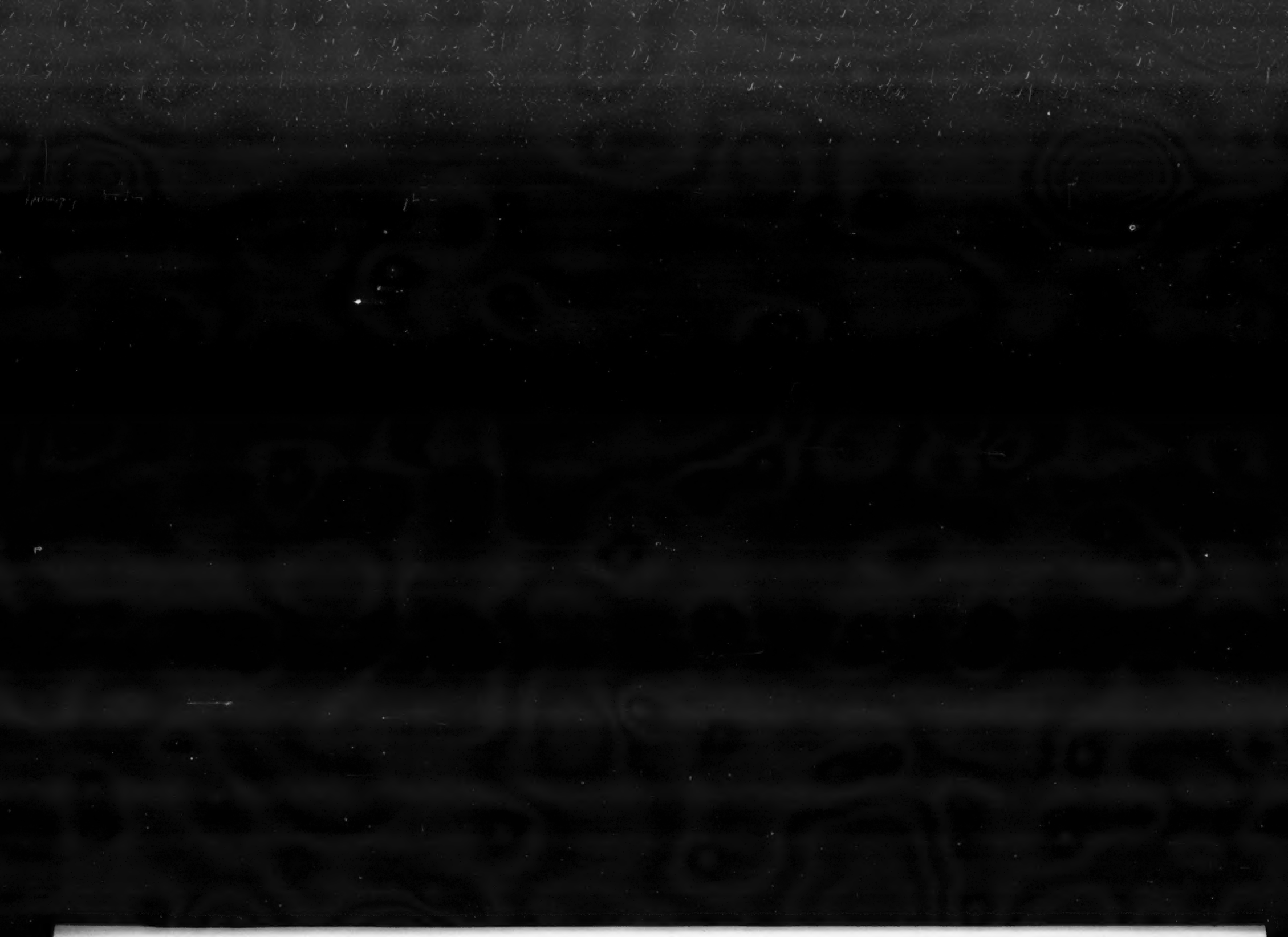
R
Reading Iron Co. 96
Rector Well Equipment Co., Inc. 59
Reed Roller Bit Co. 35
Republic Rubber Co., The .....
Republic Steel Corp. (Upson Nut Division) .....
Republic Steel Corp. .....
Roebling's, John A., Sons Co. .....
Rubloff & Co., Arthur .....
Ryerson & Son, Inc., Joseph T. .....

S
Seismograph Service Corporation ....
Shaffer Tool Works 65
Shell Union Oil Corp. .....
Sherwin-Williams Company, The ....
Smooth-On Mfg. Co. .....
Snetcher & Pittman, Inc. .....
South Chester Tube Co. .....
Spang, Chalfant & Co., Inc. .....
Sperry-Sun Well Surveying Co. 62
Star Manufacturing Company 45
Staynew Filter Corp. .....
Supplementary Code Authority of the Wire Rope and Strand Manufacturing Industry .....

T
Taubman Supply Corp. .....
Taylor Forge & Pipe Works .....
Taylor Instrument Companies .....
Terminal Warehouse Company 50
Texas Iron Works .....
Thermoid Rubber Co., The .....
Timken Roller Bearing Co. .....
Timken Steel & Tube Co. .....
Tnemec Co., Inc. .....
Tretolite Co. .....
Tube Turns, Inc. 59
Tulsa Camera Record Co. 81
Tulsa Chamber of Commerce .....
Twin Disc Clutch Co. .....

U
Union Carbide & Carbon Co. .....
Union Carbide Sales Co. .....
Union Wire Rope Corp. .....
U. S. Steel Corp. Subsidiaries.. 41 and 57
Universal Motor Co. .....
Universal Oil Products Co. 21
Utility Trailer Manufacturing Co. ...

V
Vellumoid Co., The 96
Vogt, Henry, Machine Co. .....

W
Walworth Co. .....
Warren Petroleum Co. .....
Waukesha Motor Company 61
Well Machinery & Supply Co. .....
Williams & Co., C. K. .....
Williams & Co., J. H. 60
Williamsport Wire Rope Co. 72
Wilson Supply Co. .....
W. K. M. Co., Inc. .....
Wollman & Co., W. J. 50
Wyatt Metal & Boiler Works .....

Y
Youngstown Sheet & Tube Co., The. 32-B